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*Telephone: WHItehall 9233 (12 lines)* *Telegrams: "Trazette Parl, London"*

BRANCH OFFICES

GLASGOW: 87, Union Street . . . . . *Central 4646*
NEWCASTLE-ON-TYNE: 21, Mosley Street . . *Newcastle-on-Tyne 22239*
MANCHESTER: Century House, St. Peter's Square . . . *Central 3101*
BIRMINGHAM: 90, Hagley Road, Edgbaston . . . *Edgbaston 2466*
LEEDS: 70, Albion Street . . . . . *Leeds 27174*
BRISTOL: 8, Upper Berkeley Place, Clifton . . . . *Bristol 21930*

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### Transport Bill Timetable

A GOVERNMENT motion allocating seven days to the committee stage of the Transport Bill, two to the report stage, and one to the third reading was carried by 301 votes to 276 in the House of Commons on November 24. Opposition protests at the "guillotine" procedure were made as soon as the decision to impose a timetable was announced, the complaint being that this decision had been taken without waiting to see how the committee stage of the Bill progressed. When putting the motion to the House on Monday, Mr. H. F. C. Crookshank said that the use of time within the allotted period would be decided by the business committee to be set up under Standing Order 41, and proposed that the sittings should be extended by half an hour on every allotted day. As an outline of Government policy for transport had been given in the White Paper published on May 8, and the present measure could not become law until the Spring, the various questions involved would have been before the House for eleven months, compared with eight months in the case of the 1946 Bill, which contained nearly four times the number of pages of print. The imposition of a timetable at this stage has no precedent in a Bill debated on the floor of the House, although the Labour Government took a similar step before its Iron & Steel Bill went before a Standing Committee of the House. In that instance it is arguable that there was less justification for the guillotine, because the committee proceedings would not have involved loss of Parliamentary time on the floor of the House. Mr. Morrison, however, described the motion as "scandalous" and urged that it was necessary to give more time to considering "an undoing Bill—a wrecking Bill" than to one concerned with policies of positive and constructive advancement. It was further urged that the Government's action was doubly unjustifiable in view of its slender majority. A concluding hint from Mr. Chuter Ede of curtailed discussion opening the way to "drastic action" by trade unionists against the Bill did something to reinforce Mr. Crookshank's earlier argument that measures were necessary to forestall a too liberal interpretation by the Opposition of its duty to oppose.

### An Expanding Future for Railways

MR. JOHN ELLIOT, Chairman of the Railway Executive, pointed to the possibility of a future of expanding usefulness for the railways when addressing the Southern Region Motive Power and Operating Departments dinner in London this month, of which a report appears on another page. He thought the freedom to quote rates without disclosing them to competitors, and the freedom from restrictions devised when railways were a transport monopoly, were two assets of the utmost importance in the revised Transport Bill. Their usefulness, he pointed out, would depend on their not being nullified by delay, by unreality in a scheme of reorganisation, by giving way to the railways' competitors, or by the imposition of new restrictions and limitations. On a basis of fair competition, he thought the railways could forge ahead and carry more traffic by concentrating on the tasks for which they were best fitted. Mr. Elliot referred to modern methods in research, manufacturing, and working as three factors that would contribute powerfully to future success. His quotation of Earl Haig's words at a dark stage of the 1914-18 war, that "very few things are as good or as bad as they first seem," was an apt summary of the attitude with which those concerned with providing transport services must face the future while continuing their present efforts.

### Ulster Transport Proposals

A RECOMMENDATION that the Northern Ireland Government should liquidate the losses of the Ulster Transport Authority up to date and assume liability for deficits for a further stated period is made in the report of the Transport Tribunal for Northern Ireland. The main-line railways should remain, though run at a loss, and road freight and passenger transport should be retained as public services. The Tribunal was directed to inquire into the operation of the Northern Ireland Transport Act, 1948, and the manner in which the Authority has performed its duties under the Act. It sat between March and July and its hearings were reported in our May 2, June 13, and July 25 issues. The Tribunal finds that the U.T.A. has made commendable progress towards the integration of rail and road transport, but thinks it may take five years before a final estimate of its efforts can be made. Rising costs have made it certain that the Authority has not even a "fighting chance" of discharging its accumulating deficits or balancing its revenue account, and it must be exonerated from criticisms based on its finanical losses. Diesel trains, if found satisfactory on the Bangor line, should eventually replace steam trains on all the Authority's lines.

### Efficiency in a Public Service

LORD LATHAM, Chairman of the London Transport Executive, has contributed a chapter to a book just published for the Institute of Public Administration, entitled "Efficiency in the Nationalised Industries." His contribution, like that of the other three authors whose names are given in our review on another page, clarifies

what should be understood by "efficiency" in a public service. He shows, for example, that by the nature of its business London Transport must run unremunerative services, and that strictly economic employment of staff and equipment could be achieved only at the cost of inadequate facilities in some respects. He suggests that constructive balancing of the two factors of economy, and of efficiency in the sense of reasonably adequate and cheap transport for all types of users, is a primary function of management. Lord Latham describes the London Transport system of budgeting and the regular checking of results throughout the year. He contends, however, that the pursuit of efficiency is not merely a matter of contemplating reports and returns, however nicely contrived, but needs the stimulus of a sense of vocation and of social purpose at all levels.

## Pullman Car Company Report

THE results for the year ended September 30, 1952, of the Pullman Car Co. Ltd. show the board's policy of providing a high standard of comfort and service, with a high level of maintenance of its cars, to be fully justified. The directors' report states that despite the continuance of rising costs, the net profit for the year at £63,758 shows an increase over the previous year. A final dividend of 8½ per cent is recommended, bringing the dividend on the ordinary shares "A" and "B" for the year to 12½ per cent, an increase of 2 per cent on last year's distribution. If this recommendation is approved, the carry-forward will be increased from £82,293 to £120,848. The sum debited under the heading of "maintenance" this year amounted to £65,799, against £58,405 the previous year. The strength of the company's fleet continues at 206 cars. During the year the remaining three cars for the "Golden Arrow" were completed and now are running in that service, the modification of which to connect with the afternoon sailing from Folkestone to Calais instead of the midday steamer from Dover, has been a major development.

## British Transport Commission Statistics

RECEIPTS from the British Transport Commission shipping services—largely packet steamers on the Channel, North Sea, and Irish routes—show a slight decline against last year's figure for the four weeks to October 5 (Period 10), a small rise in ship passenger receipts being more than offset by a drop in those from merchandise, mails, and parcels. Without further details available, it is impossible to make any inference as to shipping services. Continental traffic seems to have held its own throughout the summer compared with 1951, despite air competition and the imposition of the £25 currency limit before this year's tourist season. Dock, harbour, and wharf receipts follow the pattern of the preceding period, but with considerably increased coal shipments from all the Commission's ports handling this traffic, especially from South Wales ports. The staff figures show that the strength of all the main B.T.C. principal undertakings declined during the period, largely seasonally, though the drop in Hotels Executive personnel (563 out of a total staff of 16,000) was not as great as might have been expected of an undertaking catering largely for seasonal demands. British Railways staff shows little change.

## Overseas Railway Traffics

ON the Antofagasta (Chili) & Bolivia Railway, during the fortnight ended November 14, a decline by £1,500 to £122,580 was followed by a £7,970 advance to £181,860 in the second week. On the aggregate traffics have made a steady improvement in 1952 and by November 14 the total for 46 weeks was £1,446,500 higher at £7,077,000. Paraguay Central receipts continued their advance in the two-weeks under review with G345,872 and G339,464 increases to G663,153 and G650,066. Aggregate traffics for 20 weeks were G5,366,412 higher at G12,001,406. On the Victorian Railways during August there was a £510,468 rise in traffics to £2,442,385. The largest contribution to the improvement was made by the railways, which recorded a £508,755 increase at £2,431,688, and small advances were also made by road motors and electric street railways. A slight decline in traffics took place on the Dorada Railway in October and in the aggregate receipts were down by £15,984, at £345,133. Traffics for the month at £36,865, compared with £36,894 for the same month last year.

## Qualities of a Leader

LEADERSHIP, for most persons, is something which can be cultivated and its principles can be learned. The qualities which make a leader were discussed by Mr. J. W. Dedman, District Operating Superintendent, Cambridge, Eastern Region, in a lecture to the Beds, Cambs, & Hunts Section of the Institute of Transport on November 19. The good leader, he said, should have gone through the mill and have proved his ability and technical skill. His job is to bring out the good in his men. He should co-ordinate and control, but not dominate. He should not hide behind his responsibility, which is something to be worn lightly to the outside observer. He must be able to apportion his time correctly, hence the value of management training in mastering the elements of organisation. Mr. Dedman pointed out flaws in the system of promotion by seniority, with its emphasis on age rather than efficiency, and said that on the railways it led to men being appointed not because they were "suitable in all respects," but because they could not be shown to be wholly unsuitable—a far less efficient standard.

## Push-Buttons at Ealing Broadway

WITH the introduction of the relay interlocking principle and abandonment of all actual locking on the signalman's operating handles, signal engineers had to consider what form these now should take. It would have been possible to retain miniature levers, as was done in one or two Continental installations, but the turn-switch or push-button, mounted either on the track diagram or on a separate desk below, found greater favour. Double action "push-and-pull" buttons have been applied in recent French relay interlocking work and are now to be seen at Ealing Broadway in association with remotely controlled power-operated levers, as described at page 599 by Mr. R. Dell, Signal Engineer, London Transport Executive. This installation has been designed specially to reduce to a minimum both physical and mental exertion on the signalman's part. The use of route-setting combined with pre-selection enables a mere gesture to suffice for the preparation of any train movement, everything then following automatically when the correct moment arrives. The signalman is thus able to give his mind entirely to arranging the movements to the best advantage. The rest of the equipment conforms generally to established London Transport practice, the result of constant improvements in detailed design made over many years.

## Dual-Voltage Locomotives

WITH the formal opening of the Brussels Junction Railway, and its implications for international traffic, the question of whether electric working will eventually be extended from Antwerp to the Dutch frontier at Rosendaal assumes new interest. The difference in voltage between the railways of Belgium and Holland is an inconvenience that must be accepted, but it need not preclude through locomotive working and elimination of the stop at Rosendaal for some trains. This question of inter-running between lines electrified on different systems was fully explored in the B.T.C. report on Electrification of Railways, where it was shown that when the voltages are in the ratio of two to one the problem is simplified. A four-motor locomotive, for example, could be arranged to run on 1,500V. with its motors grouped in two series pairs in parallel, or all in parallel; while on 3,000V. the groupings would be four motors in series or two series pairs in

parallel. Three groupings therefore would suffice for two running speeds on either system. For three running speeds with a six-motor locomotive on the two voltages, four groupings would be necessary, with additional switchgear and connections. The provision of certain locomotives specially equipped for a particular service might be justified on a route such as Brussels—Amsterdam.

## The Transport Bill

THE debate on the Second Reading of the Transport Bill on November 17 and 18 was interesting but not very much more enlightening than the wording of the Bill itself. Brief comments on certain of the points made, in the order in which they were spoken, may be of interest. Mr. Lennox-Boyd disclosed that Mr. Barnes had already decided to abolish the Road Passenger Executive. Few would quarrel with this decision; the Act of 1947 on the road passenger side was an obvious failure. When he spoke later, Mr. Barnes confirmed his decision, but he was not happy at the construction put upon it by the Minister. Mr. Lennox-Boyd stated that the abolition of the old railway boards in 1947 was a foolish thing to do, as they had made an immense contribution to the development of British Railways. Whilst one appreciates that the part-time board has a useful part to play, the old railway boards could hardly have been retained under unification; they should have been reformed and augmented into the British Transport Commission, still on a part-time basis. The words " immense contribution " are perhaps an exaggeration.

There was then a passage between the Minister, Mr. Morrison, and Mr. Popplewell on the right of road hauliers and others to object to railway rates, the question being pressed why the railways should not have a similar right. Mr. Lennox-Boyd merely gave the weak reply that, from the nature of the road haulage business, it would be impractical for the railway to do this! One had the impression from the debate that this clause will be dropped before the Bill is an Act; it is clearly indefensible.

On railway organisation, the Minister said: " Any detailed scheme for railway decentralisation must, of course, be prepared by railwaymen." This is not clear, as the Bill puts the responsibility for the preparation of the detailed scheme on the British Transport Commission. He then added some curious words: " Meanwhile, in the ordinary day-to-day life of the railways, such reorganisation as can be undertaken within their existing powers is, of course, entirely a matter for their own responsibility." It is anybody's guess what this means.

Mr. Morrison shrewdly observed: " I cannot see that what the railways are going to get out of this greater freedom [on charges] will necessarily compensate them for the modification of the levy." This is true as the Bill stands at present. No railwayman should be under any illusion about it; the prospect is that it will put the railways back to the worst years of the 1930s. Mr. Sparks asked why, in addition to returning to the railways the road transport vehicles they would have had had road transport not been nationalised, they should not be free to develop their road services as before? This was a good question, and later in the debate the Parliamentary Secretary, Mr. Gurney Braithwaite, replied that there was nothing to prevent the B.T.C. obtaining an interest in a road haulage undertaking, or it could acquire it outright and operate the service. If this means that the railways could develop their road services as before, it meets the point.

Mr. Woodburn and other Members referred to the effect of the Bill on Scotland. There, some of the Conservatives want all forms of transport to be integrated though in the South they do not. We shall be dealing specially with the problem of transport in Scotland at the first opportunity, and the matter will be examined in more detail then. Mr. Steele mentioned the large number of matters on which power is vested in the Minister of Transport in the Bill. It is correct that under the Bill the Minister would have far more power of control over the railways than he has had before. Mr. Steele also commented on the regional railway organisations. " I am convinced," he said, " that the Bill will set up far more authorities than it abolishes. . . . I was frightened by what the Minister said today. He seemed to visualise the old boards of directors, the old companies. That is a horrible thought." None of his questions, aimed at elucidation, was answered.

One of the most important contributions to the debate came from Sir Ralph Glyn, formerly a Director of the L.M.S.R. He stressed the need for concentrating attention on transport and not a particular form of it, particularly in relation to the proposed regional organisations. He drew attention to the difficulties that would arise if the old boards were to be restored to the railways and the company system reverted to. " The point is," he said, " that it is very hard to define what is to be the function of a local board if we are to attract the right people to it, and not give it the full powers of an ordinary board, which, in these circumstances, it cannot have. It is a matter which needs to be gone into with very great care. I think it will be found in the end that there will be a General Manager and a sort of advisory committee, and this committee will be very useful because it will be in touch with local conditions and will enable the British Transport Commission and others so to apply their work that they will function better for the local knowledge so obtained." Sir Ralph went on to suggest that so many Regions should not have their headquarters in London, as is now the case. He plainly dislikes the Bill in many respects. He counselled that " The Government must face up to this, and drop a good deal of this Bill, or, rather, remould it." He rightly pointed out that great uncertainty had been created in the industry, and finally expressed serious doubts on the financial implications of the Bill. His last word was that all parties should get together to agree on a workable Bill, and he suggested that the measure should be delayed for six months to enable a special non-political review to be made of the whole matter.

On the second day, Mr. Barnes opened the debate. He pointed out at once that although the Minister had praised the old railway directors, he had obviously not paid much heed to Sir Ralph Glyn's views. On railway organisation, Mr. Barnes said that in their scheme of reorganisation, the Railway Executive created the Regions. They brought together four main-line railways, with their different methods and administrations, a great variety of locomotives, different signalling systems, and matters of that kind. In the first phase of that type of reorganisation one could not avoid taking authority into the central administration to pick out the best method and to secure standardisation. Thereafter the process of decentralisation would have taken place. The Railway Executive had created the Regions, and the Transport Act of 1947 visualised, with the area schemes, the knitting together of the Regions and it was by that process the goal of transport regions would have been reached that Sir Ralph Glyn so strongly advocated. Yet it was now proposed that all that should be scrapped. " Under this Bill," said Mr. Barnes, " the railways, against their own practical experience and judgment, are to be compelled to change to a regional or area type of organisation. The Government are forcing the abolition of the Railway Executive, whether it is right or wrong, or whether it is justified or not, and I think that the weight of opinion is against it."

Mr. Maclay, Mr. Lennox-Boyd's predecessor as Minister, spoke about the future railway organisation. He indicated that as regards Scotland the Government needed more time to consider whether there should be one co-ordinating authority for all forms of transport, and Clause 14 of the Bill made provision to this end if it were thought desirable. He went on to suggest that the proposed separate railways in general would have boards of part-time directors in charge of them. Finally, Mr. Callaghan made it quite clear that when the Labour Party is returned to

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power it will again set up an integrated long-distance public transport system, and will again nationalise such road transport as is necessary for this purpose.

To sum up the debate, it would appear that the Government has not yet made up its mind on the general form of organisation it desires for the railways, but it appears to be inclining towards the old company and board system, with some sort of central linking together. Nor is it quite clear how the detailed scheme will be prepared, or what part railwaymen will play in its devising. On charges, staff protection, railway road transport, and so forth, it remains to be seen what happens when the clauses are considered in detail during the Committee stage of the Bill. Sooner or later this Bill will come to practical railwaymen to make the best they can of it, and it looks at the moment as if it will be a particularly difficult job.

## September-October Operating Results

NUMBER 10 of *Transport Statistics* supplements the usual information for the four-week period to October 5 with certain aggregate figures for the first 40 weeks of the year. We propose to deal first of all with these useful indicators of traffic development on British Railways and summarise them in the table below.

**AGGREGATES FOR 40 WEEKS TO OCTOBER 5 (THOUSANDS)**

| Statistic for British Railways | 40 weeks to October 5 | Decrease from 1951 | Decrease per cent |
|---|---|---|---|
| Tons originating ... ... ... .. | 215,577 | 654 | 0·3 |
| Net ton-miles ... ... ... .. | 17,019,166 | 367,122 | 2·1 |
| Wagons forwarded ... ... ... | 26,569 | 476 | 1·8 |
| Wagon miles, oaded ... ... ... | 2,428,449 | 93,598 | 3·7 |
| Freight train miles ... ... ... | 107,515 | 660 | 0·6 |
| ,, ,, hours ... ... ... | 12,266 | 651 | 5·0 |
| ,, shunting hours ... ... .. | 13,177 | 432 | 3·2 |
| Steam coaching train miles ... ... | 144,748 | 426 | 0·3 |
| Passenger journeys originating (9 months to August) ... ... ... ... | 664,012 | 2,703 | 0·4 |

The unbroken series of decreases proves that there has been little pressure on railway facilities this year. The decline in tonnage was entirely in merchandise which requires a lot of handling. In recent articles we have drawn attention to the persistent loss of this high-rated traffic. A further decrease of 308,000 tons (7·4 per cent) in the four weeks to October 5 brought the total loss in 40 weeks to 1,955,000 tons (4·8 per cent). As an offset, minerals rose by 1,216,000 tons (2·6 per cent) in these 40 weeks and coal by the trifling amount of 78,000 tons (0·1 per cent). British Railways were left with a decrease for all classes of traffic of 654,000 tons (0·3 per cent). That is not to be regarded lightly at a time when railway carryings are running well below the level of the good prewar years, even although the loss is less than one-fifth of the 3,352,000 tons decrease (9·3 per cent) in traffic hauled by British Road Services.

Over the 40 weeks the Eastern and Western Regions were the only two with a larger originating traffic, owing mainly to heavy coal movements. The London Midland Region originated 856,000 more tons of minerals, equivalent to 70 per cent of the all-line additional tonnage, but forwarded 515,000 fewer tons of merchandise and 590,000 fewer tons of coal. The North Eastern Region tonnage was only 30,000 tons (0·1 per cent) below 1951, but the Scottish Region's traffic declined by the exceptionally large amount of 673,000 tons (2·5 per cent); merchandise was down by 463,000 tons (8·3 per cent) and coal by 416,000 tons (2·7 per cent), while 206,000 more tons of minerals (3·8 per cent) were put on rail. Oddly the Southern Region, which originated little more than 3 per cent of the 1951 total traffic, shows the largest rate of decrease in any Region this year—5·5 per cent, representing the loss of 358,000 tons.

The North Eastern Region worked 30½ million more ton-miles (1·8 per cent) and slightly more wagon miles. In the other five Regions the volume of movement diminished. The reduction in the Eastern ton-mileage was insignificant, though it worked 13·8 million fewer wagon-miles, a decrease of 2 per cent. Traffic seems to be more stable on the eastern side of the country. Between them, the Eastern and North Eastern Regions ran 273,000 more freight train miles, while the London Midland and Western Regions cut their train mileage by 761,000. Perhaps the most satisfactory features of the 40-weeks statistics are the savings in freight train engine hours in traffic and in shunting engine hours, which will reduce operating expenses.

### Results for four weeks to October 5

Ordinarily Period 10 is marked by a growth in traffic leading up to the peak loading season in October, November, and early December. This year there was an increase of 1,522,000 tons over the lean August-September period, but a decrease of 122,000 tons (0·5 per cent) from 1951. The Eastern Region originated 135,000 more tons (3·8 per cent) and the North Eastern had a small rise of 30,000 tons (0·6 per cent). The other Regions reported decreases varying from 9,000 tons (0·2 per cent) in the London Midland to 107,000 tons (15·2 per cent) in the Southern, which contributed only 592,000 tons to the all-line total of 22,367,000. The Southern Region originated a small quantity of additional traffic during the first 12 weeks of the year, but after March a sharp decline set in and in the 10th period the loss of merchandise alone was 53,000 tons, or 17·8 per cent.

British Railways worked 1,762·9 million ton-miles, a decrease of 71·1 million (3·9 per cent). The output of ton-miles was less in all Regions, slightly down in the Western and lower by 22 million (3·3 per cent) in the London Midland, 19 million (5 per cent) in the Eastern and 13 million (7 per cent) in the Scottish Region. The average length of haul for all classes of traffic was fully 2½ miles shorter. The number of ton-miles worked in a train engine hour rose by 16 to 1,166. That was a record for the 10th period of the year, but the train load of 160 tons was 3½ tons lighter than a year ago.

The number of loaded wagons despatched was 2,764,000, a decrease of 44,000. The average wagon load at starting point of 8·6 tons was a record for this period. British Railways worked 351·7 million wagon miles, 13·4 million less than in 1951 (3·7 per cent). The number of wagon miles produced in a train engine hour rose by 4 to 233, another record for the period made possible by returns of 254 from the Eastern Region and 281 from the North Eastern. The freight train speed of 8·81 m.p.h. was nearly a third of a mile per hour faster than the rate of progress in 1951 and 1950; the North Eastern Region reached the satisfactory speed of 10·82 m.p.h.

### Electrified Freight Lines

In Period 10 the Manchester-Sheffield-Wath electrified lines carried more traffic than they have handled since May. Loaded wagon miles totalled 591,000 compared with 649,000 in May. Freight train engine miles were 24 per cent less. The wagon miles worked in a train engine-hour dropped from 134 in May to 121 and the train speed fell from 8·5 m.p.h. to 6·7.

The slower movement may have been caused by defects which have developed in the electric locomotives, of which five out of a stock of 50 were under repair on October 5. In contrast to this high repairs percentage for a brand new set of locomotives, the Class 1 U.S.A. railways had on October 1 6·6 per cent. of their 680 locomotives in bad order. About 500 of these machines were built between 1920 and 1944, only 29 having been installed in the years 1945 to 1951. Many of them have been employed for years on sections of line where operating conditions are most exacting and have proved dependable.

### Railway Passenger Traffic

Details of originating passenger journeys and receipts for the month of August show that British Railways carried 25,330,000 ordinary passengers who paid an average fare of about 8s. 10d. That was 1,960,000 below the number carried in August, 1951. The railways also lost 1,562,000 passengers taking early morning and workmen's tickets at a fare of 8d. and 1,087,000 season ticket journeys worth about 11d. each, but carried 1,440,000 more people with excursion or other cheap tickets priced at 1s. 5½d.

Altogether the number of journeys was 92,746,000, less than the August, 1951, figure by 3,169,000 (3·3 per cent). Passenger receipts were £83,000 higher, but net passenger revenue may be lower as main line services, provided at great cost, appear to have been patronised indifferently. First class journeys in August dropped by 318,000 to 1,585,000, a decrease of 16·7 per cent, with a fall in receipts of £66,000 to £911,000, or 6·7 per cent. The Scottish Region accounted for 30 per cent of the lost journeys.

### Road Transport

Road passenger transport carried 2,872,000 more passengers (1·6 per cent) and ran 1,184,000 additional car miles (2·6 per cent), but reduced the number of employees by 1,095 during the four weeks to October 5.

British Road Services hauled 3,301,000 tons, a decrease of 591,000 (15·1 per cent) from 1951. Vehicle miles were reduced by 7,694,000 (12 per cent) and at the end of the period 547 fewer people were employed than at the beginning.

The British Transport Commission's road passenger business prospers, while its road freight interests threaten to shrivel away.

## Statistics and Locomotive Maintenance

STATISTICS have their place in co-ordinating locomotive repairs. An efficient repair period has a very definite bearing on the total number of engines required by a railway administration, for the shorter the period of repair the fewer the locomotives required and *vice versa*. Furthermore, if progressive improvement is the aim, statistics relating to past results are necessary. They need not be voluminous, since this would tend to defeat their object; but they should be sufficiently elastic to deal with changing conditions, increased mileage between repairs, improved production methods, and so on. In presenting his paper "Statistical Approach to Locomotive Maintenance" before the York Locomotive Society on November 13, Mr. K. J. Cook, Mechanical & Electrical Engineer, Eastern and North Eastern Regions, British Railways, said the maintenance of locomotives was grouped under two main heads. The first was the day-to-day rectifying of minor defects which developed from the use of the locomotive in traffic.

These defects were the responsibility of the motive power department and included what was sometimes called preventative maintenance, a system developed to forestall non-availability of the locomotive from a defect arising, the liability to which could be foreseen. Boiler washing, which removed impurities deposited in the water during evaporation, periodical examination of parts inaccessible to inspection without some dismantling, and the general upkeep of the locomotive to enable it to run efficiently, were also motive power department responsibilities. Day-to-day maintenance might be such as to prevent the locomotive being available for traffic for a period of 24 hours or more. Sometimes parts of the locomotive required extensive repair or renewal; such parts were dismantled and sent to the main works, the engine would therefore remain out of traffic until the repaired parts were returned to the repairing depot or new ones supplied. All such daily occurrences added up to non-availability.

The other class of maintenance entailed the heavier type of repair and necessitated the locomotive being taken out of traffic for a period of some weeks and sent to the main locomotive works where repairs were undertaken. Such a repair could be necessitated by a major defect developing, or by a number of smaller defects, or could be the accumulation of wear and tear beyond the capacity of the motive power depot, or even the direct result of a casualty or accident. These latter unforeseen events could be a sourcee of embarrassment to any statistical programme of locomotive repairs, but experience had shown the necessity of making some allowance for them in the planning of shopping programmes. It would be seen, therefore, that whilst the variables were not insignificant in themselves, the influence of the invariables was so much greater that it provided the necessary stability in figures, to enable the mathematical basis to be established within certain fairly wide limits.

Railways must always have available a sufficiency of locomotives in a state of good repair to meet the requirements of the traffic to be hauled, and therefore, the maximum availability of the locomotive stock as a whole, expressed as a percentage of the total engine stock, was a necessity of the very first importance. A modified system of statistical approach had been developed in the Region for each engine class to show the finer shades of trends at each statistical period in mileage run and mileage overtaken in which the basis was the potential mileage—the known mileage which a given class of locomotive should run on completion of repairs before further repairs of a major nature would be necessary. It was considered that a desirable position was reached when the average mileage of all engines in a class since the last repair was at, or slightly below, 50 per cent of the potential mileage. Not all locomotives ran the same monthly mileage, or the same total mileage between shop repairs, and while a general picture might be formed from the overall figure, it should not be accepted without qualification.

It was in fact necessary to subdivide locomotives into classes or groups of similar type and to work out at frequent intervals the mileage particulars of each class or group.

The all-important figure from the maintenance point of view, said Mr. Cook, was the mileage locomotives could attain between one major overhaul and the next as this decided the shopping frequency, and in order to attain the maximum possible mileage of a locomotive between shop repairs, it was of fundamental importance to ensure the highest degree of accuracy in the machining and fit of parts subject to wear so that they would remain in a serviceable condition between repair periods, and so contribute to keeping the locomotive non-availability figure to a minimum.

## Gotthard Motive Power

FROM its completion throughout in 1882 the Gotthard line of the present Swiss Federal Railways has been notable for its motive power—steam until 1920 and electric since—and necessarily so, for its combination of train weights, long severe grades, curves, tunnels and winter conditions has made the altogether exceptional in locomotive power quite normal. Indeed, since 1939 it has had what may justly be claimed as the most powerful locomotive in the world, with a one-hour rating of 12,000 h.p. at the motor shafts.

To begin with, the Gotthard is the most heavily-trafficked of all trans-Alpine railway routes, carrying not only heavy passenger traffic but also a substantial freight traffic. Even in 1888 it was recorded that freight traffic was taxing the locomotive stock to the uttermost. Fortunately all the freight stock in Central and Western Europe has continuous brakes. Specifications for Gotthard electric locomotives have laid down the haulage of 600-ton passenger trains up the long curved 1 in 37-40 grades at 40 m.p.h., and freight trains of 750 tons up the same sections at 31 m.p.h. With the "largest locomotive in the world," No. 11852, weighing 230 tons, the 600-ton express haulage would mean about 4,600 d.b.h.p., about 6,350 r.h.p., and about 7,100 s.h.p., though under severe weather conditions the total might be more like 8,000 s.h.p., though not for more than about 40 min., from Erstfeld up to the summit on the north side and from Bodio to the summit on the south side. This meant, in a sense, that No. 11852 was overpowered, even for the worst conditions, but its principal defect, shared with the preceding giant of 1932, No. 11851, was the weight of the locomotive, moving which took a large proportion of the total output.

Indeed, no greater light can be thrown on the two new 6,000 h.p. locomotives which form the latest contribution to Gotthard motive power, than to consider locomotive weight in relation to train weight over the 32 years since



XUM

electrification. The original passenger locomotives were the 1-C-1 rod drive type, weighing about 80 tons and hauling 250 tons at 37 m.p.h. Some years later came the most generally known of all Swiss electric locomotives, the 2-Do-1 design of classes 10901 and 11901, Ae 4/7. Of about 120 tons weight and 2,800 one-hour h.p. at 40 m.p.h., these machines were allowed 320 tons up the Gotthard at 40 m.p.h. No 11851 of 1932, of 8,650 h.p. (one-hour), weighed 240 tons and was allowed 600 tons at 40 m.p.h.; No. 11852 of 1939, of 12,000 h.p. one-hour and 230 tons weight, was allowed the same traction. That is, in passenger service, the 2-Do-1 took up a train 2·7 times its own weight; Nos. 11851 and 11852 dealt with 2·6 times their own weight. But the two new Co-Co locomotives Nos. 11401 and 11402 described elsewhere in this issue, with 6,000 h.p. one-hour rating and 122 tons weight, are allowed 600 tons at 46 m.p.h., and so handle 4·9 times their own weight at a somewhat higher speed. This speed of 75 km.p.h. is the highest that can be allowed because of the constant curves.

There could be no better reflection on the S.B.B., S.L.M., and B.B.C., to give the three most responsible organisations their universally known initials, than a consideration of these figures, for they result from all that is best and most up to date in modern mechanical and electrical practice, and in those railway considerations bound up with smooth riding, reliability, and power:weight ratio. "All-on," the locomotive weighs only 45 lb. per h.p., which, even for a transmitter of energy, which is all an electric locomotive is, can be regarded as excellent. Though Nos. 11401-02 may be regarded as high-power general-purpose locomotives—they can, for example, handle 1,450 ton freight trains over 1 in 100 grades—it is practically only on the Gotthard route where economic loadings and speeds can be found for them; and they, along with the further machines which the Swiss Federal Railways propose to order, are likely to be confined to the Lucerne-Chiasso and Zurich-Chiasso trains, being shedded at Bellinzona depot.

## Stresses in Coupling and Connecting Rods

THE design of locomotive coupling and connecting rods is complicated by the considerable inertia forces to which they may be subjected while working, and as speeds and loads continually increase, designs are tending towards the critical. Dr. H. I. Andrews, General Assistant, Electrical Engineering New Works & Development Section, The Railway Executive, in presenting his paper on "Stresses in Locomotive Coupling and Connecting Rods" before the Institution of Locomotive Engineers on November 19, expressed the opinion that it was becoming increasingly important, both that the working of such rods should be fully understood, and the loads to which they are subjected in service should be ascertained.

In reciprocating steam locomotives connecting rods were generally employed for connecting the sliding piston to a rotating crank; a simple arrangement having the added advantage that, the cylinders being more or less horizontal, the axleboxes were free to move vertically in the hornblocks as required by the suspension. In modern types of locomotives the tractive effort is usually greater than can be provided by the adhesion of a single pair of wheels, and, when connecting rods are used, it is natural for rods to be further employed for coupling the axles. Being a fully rotating mechanism, coupling rods had many advantages, and have been frequently used for coupling driving axles or jackshafts of electric or other forms of locomotives.

Apart from end details, which represent a quite normal problem in machine design, the principal difficulty in the design of rods is that of determining the stresses produced in the body of the rod due to the combined effects of thrust and inertia forces, and Dr. Andrews said that no calculations of stresses in a coupling or connecting rod could be undertaken until an estimate of the thrust or pull of the rod had been made. While this is comparatively simple for a connecting rod, it is more difficult in the case of the coupling rod, which requires a knowledge of the distribution of the applied tractive effort between the coupled wheels, and from the lack of references on the subject it would appear that the difficulties were not fully realised, and that equal distribution of the tractive effort between coupled wheels was assumed.

Dr. Andrews referred to the line of thought pursued in Germany and Switzerland some years ago when railway electrification was being carried out on the a.c. system. Coupling rods were extensively used on the locomotives both to distribute the torque from a single motor over a number of axles, and as a mechanical coupling to equalise the load between individual motors. Under the somewhat more critical conditions of these locomotives, which were accentuated by the pulsating nature of the torque, a large number of rod failures occurred, and during subsequent investigation it became evident that there was a possibility of greater loads coming on the rods than was indicated by the then conventional methods of calculations.

The problem of measuring stresses in coupling rods presents even greater difficulties than those of connecting rods. In 1928 tests were carried out by Dr. Andrews in the Transportation Department of the University of Illinois, under its Director, Professor E. C. Schmidt. In order that the load in the rod and the torque transmitted could be determined, and the effects of track irregularities separated, a new coupling rod was fitted between the main and trailing driving wheels of a standard 2-6-0 locomotive of the Illinois Central Railroad, and a strain gauge was developed for recording strains at the central cross-section of the rod. The rod, with the instrument attached, was fitted to locomotive No. 431, and operated on the Stationary Testing Plant of the University Experiment Station. Tests were carried out at various constant values of speed and tractive effort. During the test records were made of the strains at the centre of the rod, from which both the stresses and the load in the rod could be calculated, and related to load, speed of rotation, and to the torque transmitted.

## Professor G. V. Lomonossoff

PROFESSOR GEORGE VLADIMIR LOMONOSSOFF, whose death in Montreal on November 21 is reported on another page, made a contribution to the science of railway transport that reveals its full value in a period when problems of competition demand a closer study of operating in all its forms than may have been thought necessary in easier times. His very wide range of interests covered the whole field of railway traction and pointed the way to the building up of timetables based on precise calculations. He was a friend of Professor Nordmann, whose work in Germany on testing methods in general and brake tests of locomotive performance on the track reflected their mutual interests and undoubtedly owed something to Lomonossoff's theories. Lomonossoff, an authority on the mechanics of train movement in its widest sense, is remembered here for his many contributions to discussions at the Institution of Mechanical Engineers. These, as recorded in the *Proceedings* of the Institution, express more eloquently than is otherwise possible the scope of his studies and his genius for mathematical interpretation and exposition.

He was keenly interested in diesel locomotives, having been responsible for introducing this form of traction on the Russian railways in the 1920s, and spoke frequently in discussions on the subject at the Institute of Mechanical Engineers. The range of his interests is well demonstrated by the fact that he could speak with equal facility on general scientific and mathematical principles or on technical details such as combustion chamber design, to which subject he made valuable contributions in his work as a consulting engineer. Lomonossoff approached the whole subject of railway working from the standpoint of a scientist accustomed to trace every phenomenon back to its fundamental basis. He evolved a complete mechanics of railway operation, which was put at the disposal of students of transport in his lectures at the University of California.

# LETTERS TO THE EDITOR

*(The Editor is not responsible for opinions of correspondents)*

## Anglo-Scottish Traffic and Competition

November 19

SIR,—British Railways have no doubt become resigned to seeing a large share of their third class Anglo-Scottish traffic taken by road competition. A new threat has now arisen to the lucrative first class traffic; British European Airways have just reported a 150 per cent increase in passengers since the London-Glasgow return fare by air was reduced to £8.

Leaving aside the propriety of one publicly-supported corporation trying to undercut another nationalised body, it is refreshing to observe the steps taken by B.E.A.C. to remedy a lightly-loaded service, in contrast to the restrictive action invariably taken by the Railway Executive in similar circumstances. At the moment, the railways can offer no effective counter to this threat, either by way of fares or services. Next summer, it is rumoured, there will be a high-speed service operating on the East Coast route, and it is to be hoped that, like the pre-war "Coronation" train, it will run at times to suit the business traveller. Unless this train is extended to Glasgow, it will do nothing to prevent the loss of traffic on the more important London-Glasgow route.

Another curious feature of Anglo-Scottish passenger traffic is the fact that excursion facilities are only provided from London to Scotland when an international match is being played, while every weekend during most of the year there are trips from London to all parts of Ireland. Even when running, the excursion fare is nearly four times the equivalent pre-war rate. For the Coronation next year trips to London at a fare of 70s. are planned, so it is difficult to see why these excursions cannot be run regularly once a month, as before the war.

Yours faithfully,

J. N. FAULKNER

53, Westfield Road, Surbiton

## Publicising Nationalised Industries

November 11

SIR,—I should like to thank both Mr. D. S. M. Barrie and Mr. J. B. Figgins for their courteous letters in your November 7 issue in reply to my strictures in an earlier issue, and through them to apologise to all sections of the staff of British Railways for any unfairness or injustice to them of which I may have been guilty.

I agree with Mr. Barrie that it is the duty of any house organ to lose no chance of praising the staff; my only point in regard to that is that the interval between May, 1950, and October, 1952 (quoted by him), is a long one, which, in my opinion, was filled with fulsome praise *ad nauseam*.

As to Mr. Figgins's letter, there seems to me to be one statement in it of supreme importance, namely that during the four years 1948-1951, only about 7,000 railway servants were prosecuted for theft, an average of less than 2,000 per annum. I cannot imagine why this fact has not been broadcast far and wide by the trade unions and the Press. It seems monstrous that hundreds of thousands of the general public, including myself, should have been allowed to think erroneously that pilferage by railway servants had been widespread and extremely prevalent during the post-war years.

In future, armed with Mr. Figgins's assurance on this point, I shall leave no stone unturned to try and undo the injustice to railwaymen, of which I, in common with many other citizens, have apparently been guilty.

In regard to my charge of idleness, I do not feel that Mr. Figgins's reply gives a complete answer. Is it not possible that the productivity statistics of British Railways, to which he refers, are assisted by the hard work and industry of many thousands of the older and more conscientious railwaymen, despite the slackness and time-wasting of so many of the younger men, as is the case throughout industry in general?

Finally, may I assure all those who disagree with me and think that I have been wrong to criticise that there is no greater admirer of railways and railwaymen than myself. It is for this reason that I feel bitter about the way they are at present being mismanaged and devitalised.

Yours faithfully,

MICHAEL PETO

## Safety on Rail and Road

November 20

SIR,—Regarding the public concern at the Harrow & Wealdstone accident, which probably would not have occurred had the Western Region automatic control system been installed, it is opportune to focus attention on the accidents on the roads, in which over 400 people lost their lives last month.

The British Transport Commission should be reminded of and concerned at these high fatalities. Lord Hurcomb, as titular head of the nationalised transport industry, might take the initiative by calling for road memorial services in different parts of the country to arouse the public conscience to this dreadful carnage, so that a change in the transport policy will be demanded towards greater safety on the roads.

Yours faithfully,

ROBERT W. LEWIS

104, Leggatts Way, Watford

## Advertising Relief Trains

November 1

SIR,—With reference to your editorial note in the October 24 issue on the subject of relief trains, surely the solution is to run such trains *after* the parent train instead of before as appears to be the practice on British Railways.

Admitting the preference of the average passenger to travel in what I have termed the "parent" train, and more particularly if it happens to be a named train, most of them would arrive at the station in time to catch this train. If, however, they found they were unable to obtain accommodation, they would have the consolation of knowing that they would find room on the following relief train. This would give the relief its appropriate standing as "second best" and would enable the early arrivals to have the advantage of the better facilities, such as dining cars and other amenities provided by the parent train.

Moreover, with this arrangement it would not be so necessary to rely on passengers consulting timetables or special train notices to ensure the best use being made of the relief trains. The running of the relief could be brought to the notice of waiting passengers over the station announcing system immediately after the announcements which are generally made from time to time regarding the route and timings of the parent train. Such announcements should, of course, include information regarding arrival times at various destinations as suggested in your note to allay the fears of passengers that travelling by the relief train might involve a longer journey time

With such an announcement that a relief train, running to similar timings, would *follow* the parent train, waiting passengers who were unable to secure suitable accommodation in the first train would know that an alternative, likely to offer more comfort as regards space at least, would be available after a short delay and could make their choice.

It would appear that the adoption of this proposal would go far to solve the problem of underloaded relief trains and at the same time would free passengers of a great deal of anxiety, and the station staff of many vexatious inquiries.

Yours faithfully,

W. A. H. WATTS

Puck's Corner, Sunbury-on-Thames

# THE SCRAP HEAP

### Ruthless Rhymes

Leaflets in humorous verse were liberally scattered in trains of the German Federal Railway to announce the imposition of a fine of 2 M (3s. 4d.), payable on the spot, on passengers found smoking in non-smoking compartments.

### Through the Window

Our paragraph in the October 17 issue under the above heading recalls to a correspondent an ingenious travel exhibit arranged by the French Railways at the Paris Exhibition of 1937.

On entering a building the visitor found himself on a platform against which stood a train of corridor coaches, one of which he entered in the normal way. The coaches, all fairly modern vehicles arranged with the corridors on the platform side, were fitted with blue lights and their off-side windows screwed up so that they could not be opened. Otherwise the vehicles were in traffic running condition. From a seat in one of the compartments the "traveller" was treated to the illusion of making a railway journey through France, by means of a series of canvas scenes which moved on rollers across his vision. The scenery was arranged in planes moving at various speeds, the whole being so cleverly co-ordinated that it was very difficult indeed not to imagine oneself in a moving train.

A remarkable feature about this device was that even by pressing one's face against the glass of the window, the illusion of travel was not destroyed. In the old-fashioned diorama the audience was seated some way from the stage, and the presentation of the moving scenery was, thereby, perhaps not so difficult, but in the French Railways' case the co-related movement of the planes, coupled with the superb lighting effects, was superbly successful. The "journey" was, of necessity, somewhat imaginative, but the scenery cleverly merged from, say, the suburbs of Paris to the rugged coasts of Normandy and Brittany, thence to the *plages* of the Bay of Biscay, and on to the Mediterranean, returning through Central France.

### Publicising Sheffield

As part of a campaign to publicise the city of Sheffield and its work, the Sheffield Junior Chamber of Commerce has put forward the suggestion that the compartments of the "Master Cutler" express should be adorned with pictures of Sheffield, its industries and craftsmen, and the surrounding countryside. The proposal is being considered by British Railways.

### Then There Were Ten

There were 25 empty cattle trucks behind a locomotive that puffed out of Cork bound for Macroom Fair. Six miles further on, at Ballincollig, the driver looked back—and saw only ten.

It took some time to clear up the mystery. But the culprits were found. They were a herd of cattle which had been grazing peacefully when the train snorted its way past them. Umbrage was taken at the noise and smoke, and the cattle lowered their heads and charged.

They hit the train between trucks 10 and 11. The couplings snapped, and the rear 15 wagons grated off the rails. They stayed upright, however, and ran on for nearly half a mile on the sleepers, ploughing up the track in the process. . . . The cattle lost three of their number killed.—*From "The Irish Times."*

### Uphill Journey

The photograph reproduced below of a carved, unpainted wooden sign showing the way to the station ("Zum Bahnhof") at Altenbeken, an important junction in Westphalia, was sent us by a correspondent in B.A.O.R., Captain W. Harris. He points out that as the station is on top of a hill at a considerable height above the town, the sign is most appropriate.

*Carved wooden sign at Altenbeken pointing the way to the railway station*

### Self-Sufficiency

*(A reply to the verses "In Praise of Electrics" in our July 25 issue.)*

In times of stress, when tyrants rise
Against peace-loving nations,
The safety of our country lies
In maintained communications.

For transport needs abroad and here
With coal—wood—oil—as fuel,
The type of engine used 'tis clear
Must be a priceless jewel.

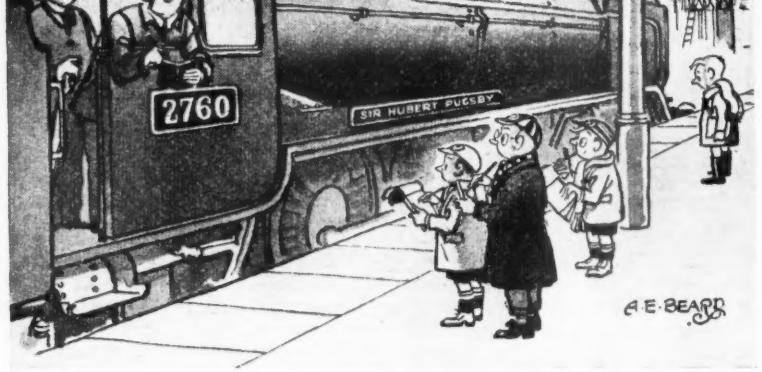
In days of yore our old steam-horse
Fulfilled all obligations,
With twenty thousand here, of course,
We lent to other nations.

The twenty thousand—minus some,
Could never be knocked out
And generations still to come
Will bless our "friends" no doubt.

Were our main lines electrified,
With six power plants about,
Our transport could be petrified,
Six "bangs" and Britain's out.

The moral from these notes I've penned,
"If there's something more efficient,
The substitutes for our old 'friend'
Must each be self-sufficient."

J. B.




*"That's three new ones today—a Munsbridge Grammar School, a West Rockham Secondary, and a Redcliffe College"*

*[Reproduced by permission of the proprietors of "Punch"*

# OVERSEAS RAILWAY AFFAIRS

*(From our correspondents)*

## RHODESIA

### District Superintendents

A new district superintendent's office has been opened at Livingstone, gateway to Northern Rhodesia. There are now four District Superintendents, at Salisbury, Bulawayo, Livingstone and Broken Hill. The new office will for the present be responsible only for train working arrangements between Wankie and Kafue.

### Coal Haulage

The recent strike of native employees on the Copperbelt enabled the railways to stockpile coal supplies at the four copper mines, where Europeans offloaded coal as native labour was not available. In October, 50,000 tons were delivered to the copper mines. During that month Wankie Colliery loaded 217,392 tons for haulage by rail to all points, and added 3,356 to the colliery stockpile, which amounted to 19,600 tons at the end of October.

### Diesel Locomotives

Six diesel-electric locomotives have arrived from the United States. Twenty-three more, from the English Electric Co. Ltd., have been ordered. Delivery will begin about the middle of 1954.

## SOUTH AFRICA

### Accounts for 1951-52

The accounts for the financial year ended March 31, 1952, which have now been finalised, show that the operation of the railway, harbour, steamship, airway, and aerodrome services resulted in a deficit of £449,013 for March, 1952, and a gross surplus of £6,370,057 for the financial year 1951-52. The surplus for the financial year 1950-51 was £8,470,323.

The surplus for the financial year was £1,235,943 less than the estimated surplus of £7,606,000, which was expected when the revised estimates were framed. This deficiency is because receipts from railways, mainly from goods traffic, were less than expected.

### Record Coal Movement

Fifty-three coal trains were despatched from Witbank southwards during one 24-hr. period of the week ended October 26, helping to set up a new record for one week for southbound traffic over the Witbank-Angelo section. In that week 504,241 tons of traffic were moved from Witbank, a record which exceeded the previous one by 14,986 tons.

### Summer Timetable

Summer timetables for passenger services were introduced on November 24. Generally speaking, more trains are being operated; the "Blue Train," which during the winter months ran once a week between Johannesburg and Cape Town, again runs twice a week in each direction.

Up to the end of January, 1953, the fast morning passenger train between Johannesburg and Cape Town will leave Johannesburg at 10 a.m. daily except Mondays and Thursdays. After January this train will leave from Johannesburg on Sundays, Tuesdays, Fridays and Saturdays and from Cape Town on Sundays, Tuesdays and Fridays.

An additional train will leave Cape Town for Bulawayo at 7 p.m. on Sundays during the period December 7, 1952, to January 25, 1953. Arrival at Bulawayo will be Wednesdays at 6.45 p.m. A connection for Johannesburg passengers will be provided at Mafeking.

## NEW ZEALAND

### Protests at Conversion of Locomotives

Enginemen and cleaners have expressed concern through their Association at the Railway Department's proposal to convert oil-burning locomotives to coal-burners. Answering the criticism, Mr. H. C. Lusty, General Manager of Railways, said that the greater use of relatively cheap, locally-produced fuel was necessary to cut operating expenses. Although many advantages resulted from the use of oil-fired locomotives, the present high prices paid for imported oil could not be economically justified now that the supply of coal had shown a marked improvement and was more assured than it had been for several years.

When in 1946, the Railways Department decided to convert most of its heavy-duty steam locomotives in the North Island to burn oil-fuel, coal was scarce and oil reasonably cheap at £6 10s. a ton. Since then, said Mr. Lusty, oil costs had soared and early this year had reached £21 a ton. Although the price had fallen during recent months, it was expected that early in 1953 the cost a ton would be about £14.

## UNITED STATES

### Increased New England Services

The declared policy of Mr. Frederic C. Dumaine, President of the New York, New Haven & Hartford Railroad, to "put on passenger trains whenever and wherever the opportunity offers," was implemented by timetable changes which became effective on September 28, when 50 trains were added to the New Haven timetable. Some were new services, others the reinstatement of services previously withdrawn. This applies, for example, to the line between Worcester, Mass., and New London, Conn., which has been without local passenger service for 24 years; Fall River, said to be the largest town in the U.S.A. without railway passenger facilities, also has had passenger trains restored. In addition, 26 trains have been accelerated. The new services in large part are being provided by "RDC" diesel-hydraulic railcars, known as "Shoreliners," and Mack 45-seater diesel railbuses, to which previous references have been made in these columns.

That the New Haven policy is having successful results is proved by the fact that in the first six months of 1952 1,400,000 more passengers were carried than in the corresponding period of 1951, with the improved services only just beginning to come into operation. The Boston & Maine Railroad put on 28 new trains from the same date.

### New Southern Freight Yard

The Southern Railway has just brought into use at Birmingham, centre of the iron and steel producing district of Alabama, its new Ernest Norris freight classification yard, named after its President, Mr. E. E. Norris. The new yard has a total length of just over two miles, and at its widest comprises 60 individual tracks. The installation, which includes a diesel maintenance shop, has cost approximately $1,000,000.

## CANADA

### Labrador Railway Progress

The completion of the Quebec North Shore & Labrador Railway into the heart of the Ungava iron ore territory is expected next year, a year sooner than expected, according to an official statement. Rails have been laid over a distance of 135 miles and grading has been finished over another 40 to 50 miles.

The line being built at a cost of about $125,000,000, will link Seven Islands on the north shore of the St. Lawrence and Burnt Creek, the iron ore centre where mining operations will be carried out. Burnt Creek is on the Quebec side of the Quebec-Labrador boundary.

## FRANCE

### Mileage Tables

From August 1, the S.N.C.F. changed its method of calculating distances between stations for the assessment of freight rates. Previously three different types of table were maintained, one showing the kilometrages between stations on any section of line and the junction stations at the end of the section; a book for each Region (five books in all) showing the distances between any two stations on the same or a neighbouring section of line and also distances between junction stations; and a third volume giving the kilometrage between certain stations where the rate was based on a route other than the shortest.

The new method has reduced the number of books to three, with a total of 698 pages. The first is an index

giving a map reference for each station or depot, a reference number for each junction station, and a section reference number for the other stations or depots. The second consists of 33 diagrammatic maps so designed that every section of line appears on at least one map; each map shows the distances between neighbouring junction stations and between adjacent stations or depots. The third contains a series of tables showing chargeable distances between any two junction stations.

The opportunity has been taken to eliminate certain anomalies inherited from the former company-owned railways; in particular the number of exceptional mileages have been reduced.

## WESTERN GERMANY

### Carriage and Wagon Industry in 1951

Although the carriage and wagon building industry of Western Germany has been short of materials, particularly of heavy and medium steel sheet, it was able in 1951 to keep output at the 1950 level. It was, however, far from working to capacity.

Repair work accounted for about 62 per cent of the turnover in 1950, but dropped to 55 per cent in 1951. The proportion represented by work done for German Federal Railways in the total turnover was 45 per cent in 1951, compared with an average of 65-70 per cent before the war; in this, repair orders accounted for about 90 per cent. Federal Railways orders covered 6,450 wagons early in 1952, distributed among ten firms; in addition, 160 railbuses and 130 trailers were ordered. Repairs comprise 13,900 wagons and 446 coaches.

An order for 66 postal vans was received from the West German Postal Administration. The Deutsche Schlafwagen-Gesellschaft, which operates sleeping and restaurant car services within Western Germany, placed no orders.

Tramway concerns' orders entailed the delivery of only 300 tramcars in 1951, a small item, as the total number of tramcar fleet in Western Germany averages about 10,000.

### Fewer Exports

The export business, which was promising in 1950, contracted in 1951, because of severe competition from abroad and of the longer terms of delivery the industry was compelled to demand. This is stated to have been due to the lack of support from the rolled steel industry. Delayed deliveries of rolled steel products have, in their turn, been responsible for deferred de- of the export business.

### Lines Through Swiss Territory

An agreement recently concluded between Western Germany and Switzerland provides that the lines through Switzerland formerly owned by the German State Railways and placed under Swiss trustee administration since 1945, shall be restored to the German Federal Railways. The lines concerned total 31 route-miles, and comprise the section of the 70-mile Singen-Waldshut-Basle railway which traverses the Canton of Schaffhausen and the sections located in Swiss territory of the local lines converging upon Basle, including the westernmost portion of the Singen line mentioned above. The restoration takes effect from January 1, 1953. According to the railway convention concluded between the Grand Duchy of Baden and the Swiss Confederation in 1852, Switzerland still retains the right to repurchase the German railway lines located within its territory.

## Publications Received

*Modern Locomotives.* By Brian Reed. Boys' Power & Speed Library. London: Temple Press Limited, Bowling Green Lane, E.C.1. 10 in. × 7½ in. 87 pp. Illustrated. Price 9s. 6d.—There has been extensive revision of this book on locomotive construction and operation for its second edition, which also includes a number of new illustrations. The first edition was reviewed in our January 20, 1950, issue.

*World Railways:* 1952-53. Compiled and edited by Henry Sampson. Second Edition. London: Sampson Low, Marston & Co. Ltd., 25, Gilbert Street, Oxford Street, W.1, 13 in. × 8½ in. × 1½ in. 550 pp. Fully illustrated. Price £4 4s. —The new edition of this companion volume to "Jane's Fighting Ships" and "Jane's All the World's Aircraft" embodies many improvements. The comprehensive information supplied makes it a unique and valuable work of reference, more particularly in motive power matters, steam, diesel and electric, though there are some useful maps and loading gauge profiles. Recent developments are described such as the regrouping of railways in the Dominion of India and the Dijon-Lyons electrification on the French National Railways. Developments in some African territories are adequately dealt with. The completeness of the particulars and the variety of the illustrations reproduced of the U.S.S.R. and some Asian railways is meritorious in view of the difficulty in obtaining information from the countries concerned. Correction of the few inaccuracies and rather fuller treatment of some of the systems dealt with, are only a matter of time for the next edition. The foreword contains some provocative statements, and is itself a competent survey of developments in world railway activities.

*Efficiency in the Nationalised Industries.* London, 1952: Published for the Institute of Public Administration by George Allen & Unwin Limited, 40, Museum Street, W.C.1. 8½ in. × 5½ in. 65 pp. Price 7s. 6d.—Four leaders of nationalised industries explain their conceptions of efficiency and how their undertakings strive towards it. They are Sir Hubert Houldsworth, Chairman of the National Coal Board; Mr. Henry Jones, Deputy Chairman, the Gas Council; Lord Latham, Chairman of the London Transport Executive; and Lord Citrine, Chairman, British Electricity Authority. A foreword by Mr. Herbert Morrison expresses the hope that the employees of these concerns will "go about their work . . . deriving pleasure from the fact that they have the privilege of working for the good of their country and the well-being of their fellow citizens." All the contributors show an awareness of the importance of human relations within the industry—a necessary background for cultivation of the amiable state of mind depicted by Mr. Morrison. We refer editorially on another page to Lord Latham's contribution to the book. This collection of authoritative views on a widely debated subject is reassuring in its revelation of the thought given to efficient working, and should be illuminating to many in its definitions of what is meant by efficiency in the public services.

*Osram Lamps & Tubes.*—This year the Osram catalogue is being issued in three sections, of which Part I has now come to hand. It covers lamps for general and special lighting service, including filament, fluorescent, mercury, and sodium types. Tables of technical details show overall dimensions, light output, and other particulars of use in selecting lamps for particular applications. An addition to the catalogue this year is the 40-watt Osram circle hot cathode fluorescent lamp, which is available in the Mellow colour.

*Electrical Resistance Alloys.* — The physical and technical properties of electrical resistance alloys, Isabellin NCM, Isabellin A and Maganin are described in a series of illustrated leaflets published by Isabellen-Hütte, Kommandit - Gesellschaft, Dillenburg (Hesse). The alloys are used in the manufacture of electrical apparatus in the form of wires and strips, the most common use being for electrical resistances for starting, regulating, measuring, and for heating up to 400-500° C. An important characteristic of Maganin is its small thermo-effect with copper; the material is therefore exceptionally suitable for low-resistance standards.

*Sheet Metal Working Tools and Equipment.*—An illustrated catalogue has been issued by F. J. Edwards Limited giving details of Besco hand tools for use in the sheet metal working industry. Dimensional details and weights are given in each case, and include copper faced, rawhide and rubber mallets, panel beaters and planishing heads, heaters and so on. Details are also included of Besco sheet metal working machines for swaging, marking, bending, and rotary flanging and edging machines for bench or floor mounting.

# Control Desk Signalling Operation at Ealing Broadway

*London Transport installation minimises mental effort required of signalman in operating the equipment*

*By R. Dell, M.I.E.E., M.I.Mech.E., M.I.R.S.E., Signal Engineer, London Transport Executive*

AT Ealing Broadway, both the Central Line and the District Line of London Transport terminate; the Central Line with two platforms, whilst the District Line has three platforms, and sidings for the stabling of trains.

The original signalling comprised an electro-mechanical frame which operated the signalling for the District Line; and in the same signal box was added in 1920 a power frame for operation of the Central Line signalling. Generally, two signalmen have been employed for these two frames. Modernisation of the signalling installation has now become necessary and a new signal box has been built on the north side of the line, as shown in the layout diagram, Fig. 1.

The installation incorporates a complete innovation for the control of signalling so far as London Transport is concerned. The signal box has been equipped with the usual strip-light illuminated diagram, but in place of a lever frame or a panel with thumb switches, a control desk equipped with push-buttons has been provided. The layout of the control desk has been arranged so that it can be operated by one signalman seated in a chair, and all operations can be carried out without moving from his seat.

An important feature of the push-

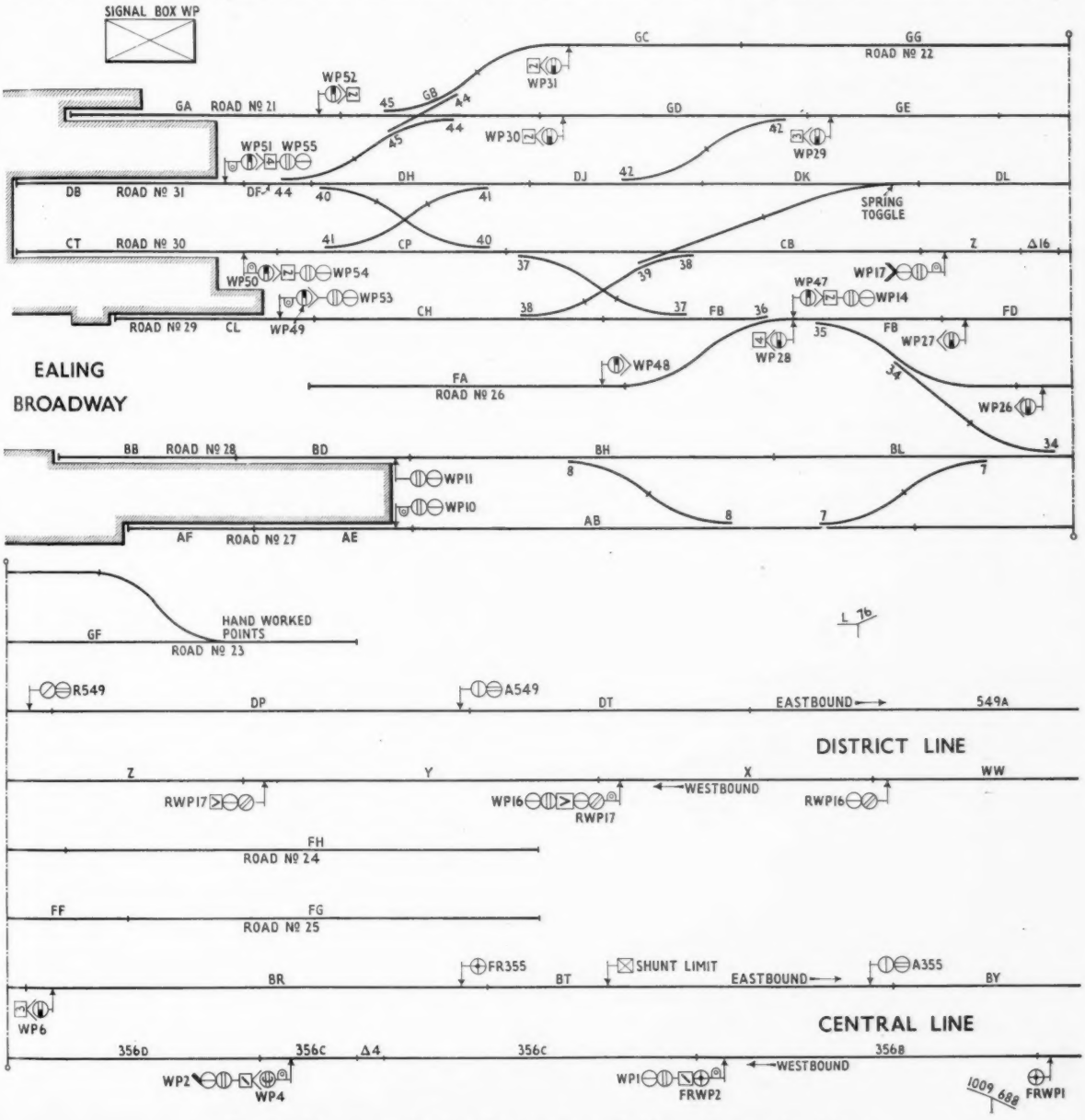



*Fig. 1—Diagrammatic plan of layout controlled from the new signal box*

# Control Desk Signalling Operation at Ealing Broadway, London Transport Executive

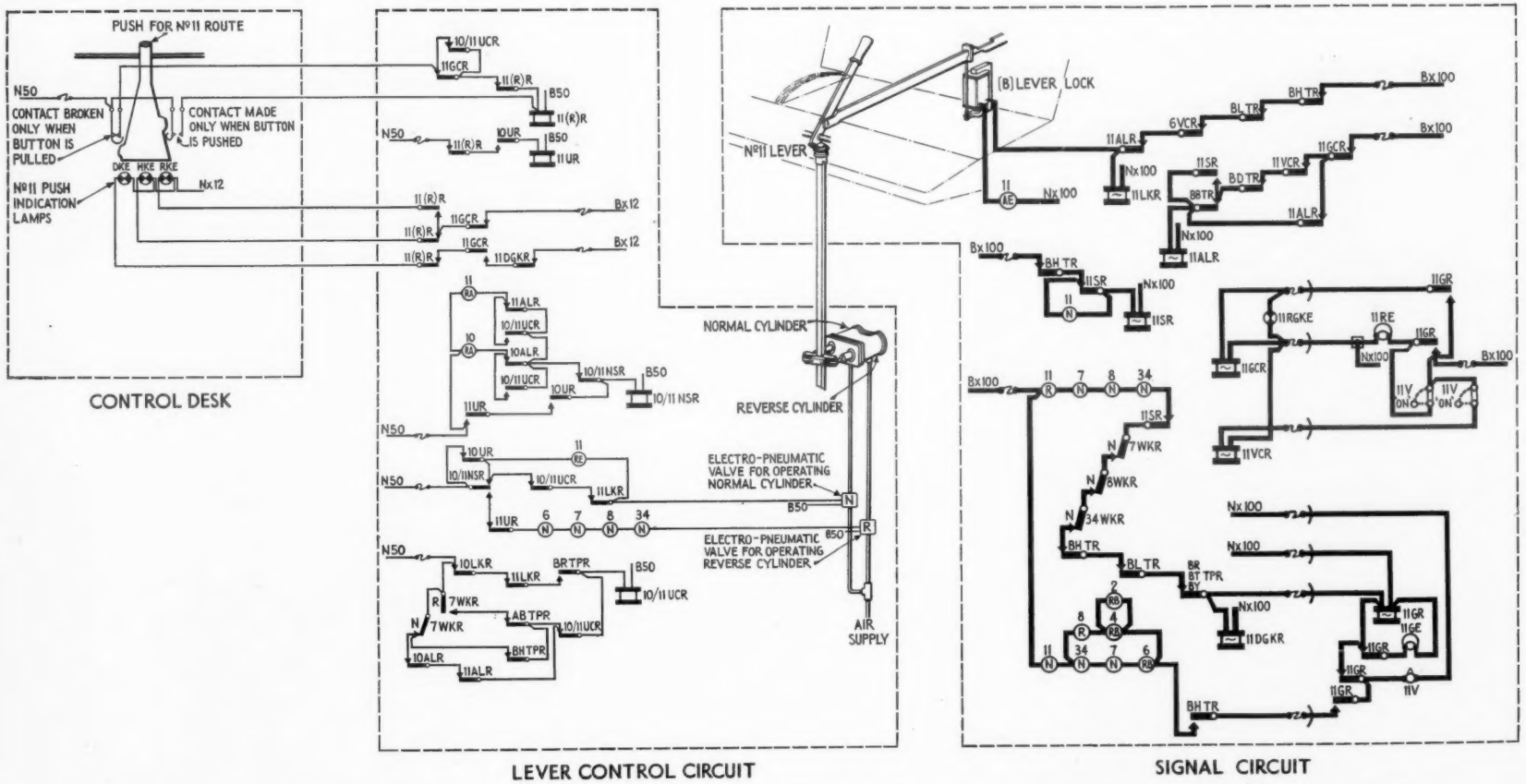



*Fig. 2—Typical circuit for control of one signal, showing the push-button control circuits in thin lines and the safety signal circuits in heavy lines*

*Control desk and illuminated diagram in the new signal box at Ealing Broadway*

button operation is that the buttons automatically return to their normal position after being pushed and, therefore, the signalman's effort, both physical and mental, is appreciably reduced. The one operation of the push-button completes the matter, so far as a particular train movement is concerned, and no second movement is required to replace it, as is necessary if a lever or thumb-switch is employed. The push-button operation is carried out on the route system, so that the minimum number of buttons needs to be pushed for each train movement.

**Pre-Selection**

Pre-selection is provided for on all the push-buttons, and it will always be possible for the signalman to operate buttons for a route ahead of the train movement actually taking place. This provision has two features. One results in elimination of the signalman's operation time, so far as traffic movement is concerned. The signalman pre-sets the next movement, prior to completion of the train movement already in hand, and the setting of the points for the clearing of the signal then becomes entirely automatic, the time occupied being only that for actually throwing the points and clearing the signal after the appropriate fouling tracks are cleared.

The other advantage is a distinct reduction in the mental effort required of the signalman, as he is not required to remain in a state of mental tension to operate the buttons within a split second of track circuits clearing; but he can, with care and deliberation, decide what the next movement shall be and operate the buttons accordingly, without having to wait for the clearing of fouling tracks and then operate the buttons with excessive speed to avoid holding up following trains.

The type of push-button incorporated in this desk has been specially designed for the purpose and acts as a visual indicator. The button itself is made of "Perspex," and by arranging three coloured lamps below, it can be illuminated in either red, yellow or green. The red illumination of the button indicates to the signalman that the route is normal. Yellow illumination shows that the route has been pre-selected, but that it is waiting the clearing of fouling tracks before the route can be set up and the signal cleared. A button illuminated green indicates that the route has been correctly set and that the signal is clear.

The button is actually provided with two movements, one being the press movement, which is all that is usually required, but in addition the button can be pulled, this being purely an emergency operation for use should the signalman require to replace a signal to danger after he has set a route. This pull operation is not likely to be in frequent use, except for occasions when the signalman wishes to test the operation of his desk.

It is extremely difficult to design a desk with push-buttons closely spaced for ease of operation, without making the accessibility of the push-button equipment unsatisfactory. This problem has been overcome, in the present instance, by making the push-buttons quickly removable, with plugged-in connections at the back. Therefore, to carry out maintenance or renewal of a lamp, it is only necessary to give a 90 deg. turn to the two quick-release fasteners on the front panel and the whole push-button, with its contacts and lamps, can be withdrawn. An accompanying illustration shows a push-button unit withdrawn from the desk.

**Circuit Arrangements**

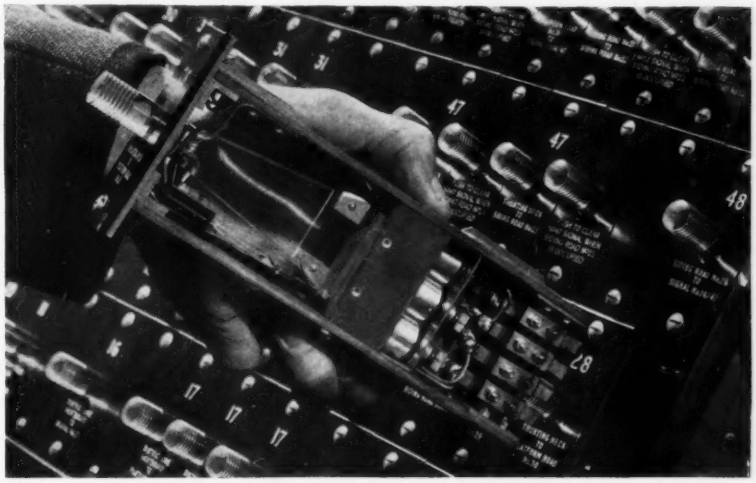
The control circuits follow the arrangements which have been used in several previous installations on London Transport, adopting the power-operated lever system, so that the control circuits are entirely segregated from the safety signalling circuits. A power frame with mechanical interlocking is installed at the end of the relay room on the ground floor level of the signal box building. Access is provided to the levers of this frame by the Operating Staff, so that, in the event of a failure of any of the control circuits, the actual levers can be manipulated. Fig. 2 shows the circuit diagram for a typical route. The control circuits between the push-button and the lever-operating cylinder are shown in fine lines, whilst the safety signalling circuits are in heavy lines.

It will be noticed in particular that the lever control circuit is entirely separate in every respect from the signal circuit, the only connection between these two being the mechanical movement of the lever, at which point the mechanical interlocking is provided, so that, even should any form of trouble develop in the lever control circuit, no danger could arise, as the control of the signal circuit is fully protected by the mechanical interlocking.

The pre-selection feature, which is provided on all push-buttons, is effected by the special circuit on relay 11(R)R. This relay is energised by the pressing of the button and remains in that condition until the signal or signals controlled have been cleared and put to danger. It serves to hold the appropriate circuits for setting the levers as soon as the previous train movement has been completed.

**Reduction of Signalman's Effort**

As already mentioned, one of the principal objects in producing this form of control desk has been to reduce to the minimum the effort required by the signalman, particularly the mental effort, and there is no doubt that the concentration necessary to carry out actions at a specific time does contribute very greatly to the mental effort required in the signalman's work. Fig. 3 illustrates the difference between the types of



*Close-up of control desk with push-button unit being removed, showing plug-in connections at rear*



XUM

operation and shows the very great reduction that the push-button operation gives, both physically and mentally. It is not, of course, possible to measure the mental effort in units, but for the sake of producing a diagram, the mental effort has been given an arbitrary value. Both this and the physical effort are merely drawn diagrammatically and with no reference to any measurement scale. The horizontal scale of the diagram is, however, timed in seconds.

The times shown have been taken

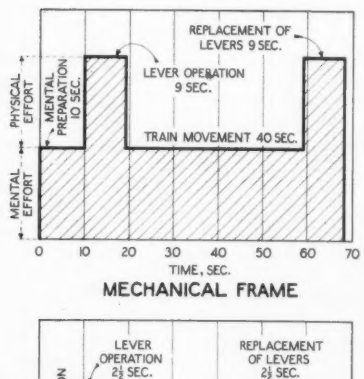
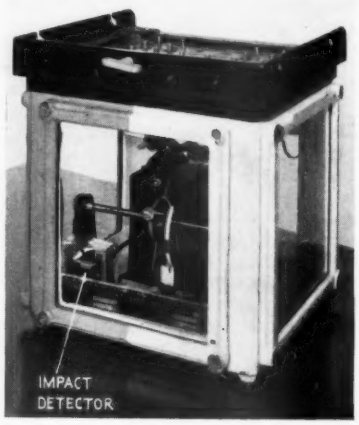



*Fig. 3—Comparison of mental and physical efforts for different forms of signal operation, showing the substantial reduction achieved by push-button control*

from the old signal box at Ealing Broadway and therefore are directly comparable. It will be observed that, with the electro-mechanical frame, there is a short period of mental concentration in deciding on the movement to be made, followed by the physical effort of moving the levers; then a period of mental concentration waiting for the train movement to be completed, followed by a further physical effort in replacing the levers. In the operation of the power frame, the reduction is purely in the physical effort. This is shown, and results in a reduced overall time, but there is comparatively little gain in the degree of mental concentration required.

Thirdly, the operation of the push-button is shown and here the mental concentration occurs only before the operation of the button. The physical effort is the minimum and occupies only two seconds, and after the pushing of the button, the movement can be more or less forgotten by the signalman, as everything is carried out automatically. The signalman is therefore free to turn his entire attention to thinking of future train movements, and by utilising the pre-selection feature, he can immediately operate the buttons for the next movement.

It will be seen from the above description that the facilities enable the signalman to carry out his work very much more to suit his own conditions,




*Location of impact detector in relay*

and with a greater independence of the actual time of arrival or departure of trains. Thus he is much freer to attend to other matters, such as telephones, without the risk of delay to the train service.

### Automatic Working—Central Line

Provision is made on the desk for automatic working of the termination of the Central Line trains. Three switches enable any one of three conditions to be chosen:—

(1) All trains reverse in road No. 27.
(2) All trains reverse in road No. 28.
(3) Trains reverse alternately in roads Nos. 27 and 28.

An automatic time-recording clock is also being provided for this service, which stamps the time of departure of the trains by printing figures on a strip of paper.

### Loud-speaking Telephones

Pursuing the policy of reducing the signalman's work, telephones are arranged to be operated by microphone and loudspeaker; thus the signalman has both hands free whilst carrying out a telephone conversation. On receiving a telephone call, the signalman merely depresses the appropriate telephone key and leaves it down, speaks into a microphone mounted on a movable arm which can be arranged in the most convenient position for speaking, and hears the reply through a loudspeaker. No send/receive key is necessary, and a two-way conversation can be carried on, as in normal telephone communication. To guard against a breakdown of the amplifier equipment used with the loudspeakers, a handset is provided for use as an alternative.

The remainder of the signalling equipment follows the normal London Transport practice of colour-light signals, retaining the aspects which are being standardised throughout the system, and electro-pneumatic points and trainstops.

### Impact Detectors on Relays

A noteworthy feature is that all the signalling relays in this installation have been provided with an impact detector as shown in the illustration alongside. Experience has shown that it is possible for damage to occur to the delicate parts of relays, particularly a.c. relays, due to their having been dropped or otherwise roughly handled, without the fact being shown by breaking or cracking of the glass. Bearing in mind that the entire safety of the signalling installation rests on the correct operation of the signalling relays, this becomes a very important matter.

The impact detector comprises a small weight which is balanced between springs, and so long as it is in position, it indicates that the relay has not been subjected to rough handling. Should the relay have been dropped or receive any other blow or shock which might endanger the pivots or other parts, the shock will be sufficient to dislodge the weight from its support between the springs, so that displacement of the weight is an immediate warning of damage to the relay, which consequently would not be put into service.

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RAILWAY BENEVOLENT INSTITUTION.—At a meeting on November 19 the Board of the Railway Benevolent Institution granted annuities to 7 widows and 18 members involving an additional liability of £300 3s. per annum. Forty-two gratuities were also granted, amounting to £550, to meet cases of immediate necessity. Grants made from the Casualty Fund during the month of October amounted to £543 8s.

FOREIGN TRAVEL IN GERMANY AT PRE-WAR LEVEL.—According to a statement by Dr. Seebohm, Federal Minister of Transportation, in his address at the inauguration of the Institute of Foreign Travel (Institut für Fremdenverkehrs-Wissenschaft at the Goethe University in Frankfurt, on October 11, foreign travel in Germany has reached the 1938 level. This, he said, was largely due to efforts made in other countries to promote tourism in Germany; travel to and within Western Germany would continue to be facilitated by every possible means.

# Experimental Lifting Barriers on North Eastern Region

## *Replacement of gates at public crossing in Yorkshire*

AT Warthill, some six miles from York on the Hull line, the North Eastern Region has substituted experimental lifting barriers for gates at a public road crossing.

These barriers, the first of the type in this country, will reduce the heavy maintenance costs of mechanically-operated gates. Four 15-ft. gates have been replaced by two 30-ft. barriers, thus considerably reducing the number of connections.

Each barrier consists of a steel tube, 12 in. in diameter at one end tapering to 5 in. in diameter at the other and pivoted on phosphor bronze-lined plummer blocks carried on welded steel pedestals so that the centre line of the barrier is approximately 4 ft. above road level. The butt end of each barrier has a 1,500 lb. weight for balancing.

Suspended from each barrier is a curtain consisting of light alloy rods pivoted at the top and linked at their lower ends so that when the barrier is down the gap between road and barrier is filled in, and, as the barrier is raised, the curtain folds inward so as not to obstruct the passage of road traffic.

A special catch, controlled from a lever in the signalbox, detects and locks the barriers in the horizontal position, ensuring that they are secured before the railway signals protecting the crossing can be cleared.

### Operating Mechanism

The barriers are operated through rack-and-pinion mechanism by a 3 ft. 4 in. dia. geared wheel in the signalbox, and the effort required to move the barriers compares favourably with that of working a four-gate layout.

A 3 ft. diameter "Stop" board with 9 in. letters, illuminated at night, is placed on each side of the crossing facing road traffic and controlled by a lever in the signalbox. This lever rotates the "Stop" boards through 90 deg. so that they face road traffic when the barriers are about to be lowered and show their edges to road traffic after the barriers have been raised.

Mounted on the posts which carry the "Stop" boards are twin electric lamps, one of which exhibits a steady red light to road traffic when the barriers are down and is extinguished by movement of the "Stop" board lever when the barriers have been raised.

Before the barriers can be lowered the "Stop" board lever must be replaced and this action provides a 110-volt feed through a relay impulse unit to the twin lamps giving flashing red indication to road traffic while the barriers are being lowered. When the barriers are down the final movement of the catch lever which locks the barriers also cuts out the relay impulse unit, and the flashing indication is replaced by a steady red light in the right hand lamp at each side of the crossing. When the "Stop" board is moved to face road traffic a 24-v. d.c. supply feeds a red warning lamp fixed to the centre of each barrier and also the floodlights which illuminate the "Stop" boards during the hours of darkness. These lights are displayed during the whole period of operation of the barriers and are extinguished only when the "Stop" boards have been turned away from road traffic after the barriers have been raised. A standby supply maintains light on the barrier and "Stop" boards if power fails.

Cattle grids flanking the roadway prevent animals from straying from the crossing on to the railway. The whole area of the crossing is floodlit during the hours of darkness by means of 300-watt lamps in Benjamin R.L.M. 18-in. dia. reflectors with a 20 deg. cut-off, which prevents unsighting signals.

*New lifting barriers at Warthill on the York-Hull line*

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FOREIGN COMPETITION IN TRADE.—Increasing competition from overseas was discussed by industrialists meeting at the British Institute of Management Conference which concluded at Harrogate on November 6. One delegate said that in many foreign territories, particularly in Latin America, there was a tendency to try to insist on part payment at least in local currency. Continental competitors appeared to be prepared to accept local currency, and would grant long-term credits up to periods of six and seven years, and at times might deal on a barter basis. In the discussion it was agreed that the special terms of payment which competitors could offer sometimes, rather than under-selling British products, was the greatest danger to British export trade. Sir Norman Kipping, Director-General, Federation of British Industries, considered that new international agreements were the only answer to some of the methods adopted by competitors of Britain.

FEATURES OF THE B.I.F. NEXT YEAR.—All three sections of the British Industries Fair, which will be held next year from April 27 to May 8 will be open to the public every afternoon and all day on Saturday. At Earls Court, visitors will see a "sectional city" of prefabricated buildings specially designed for export markets. Another new section, at Olympia, will be devoted to small craft. The main feature of the show in London will be the textiles and clothing section at Earls Court, where some 200 exhibitors will occupy almost the entire ground floor. The Commonwealth display at Earls Court will be larger than ever, occupying a site of nearly 10,000 sq. ft. where 23 Commonwealth Governments will exhibit. In time, materials, exhibits, space, services and promotion, the Fair is reckoned to be worth £10,000,000. In many ways it is expected to approximate next year more closely to a typical pre-war B.I.F.

# New Locomotives for Gotthard Line—1

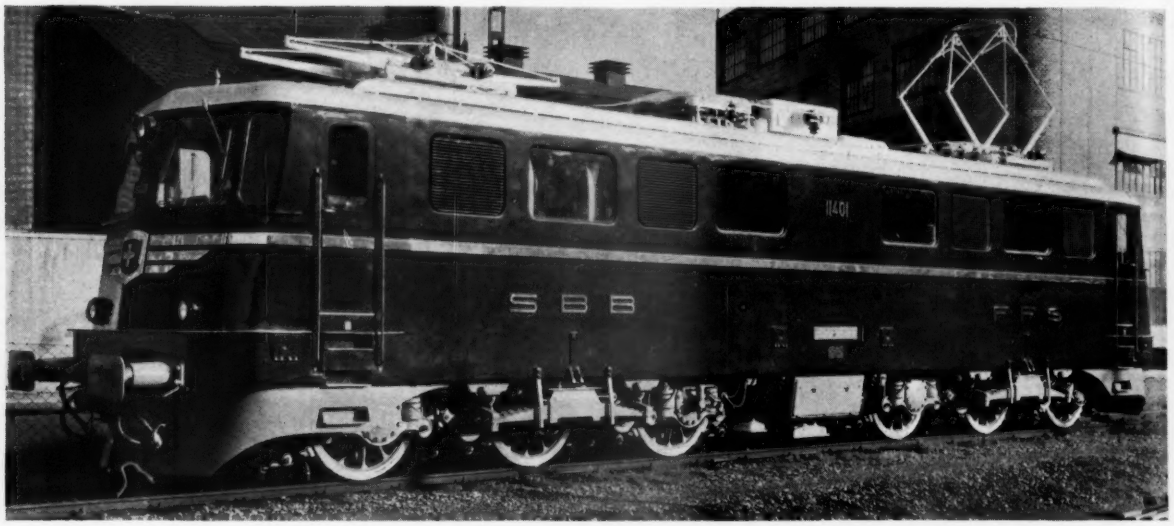
*Double-bogie 6,000 h.p. electric units with 21-ton axle load*

THE latest addition to the Gotthard line motive power has just been made by the Swiss Federal Railways with two 122-ton, 6,000 h.p., Co-Co locomotives with certain outstanding features in conception and design. The characteristics of this line with its numerous and long tunnels, and continuous curved grades of 1 in 37-40 are too well known to need further repetition here; but it may be mentioned that for locomotive or traffic purposes "the Gotthard line" is considered as extending from Lucerne or Zurich in the north to Bellinzona in the south, distances of 105½ and 116 miles respectively; though actually the locomotives work through to Chiasso, *i.e.* 140 miles from Lucerne and 150½ from Zurich.

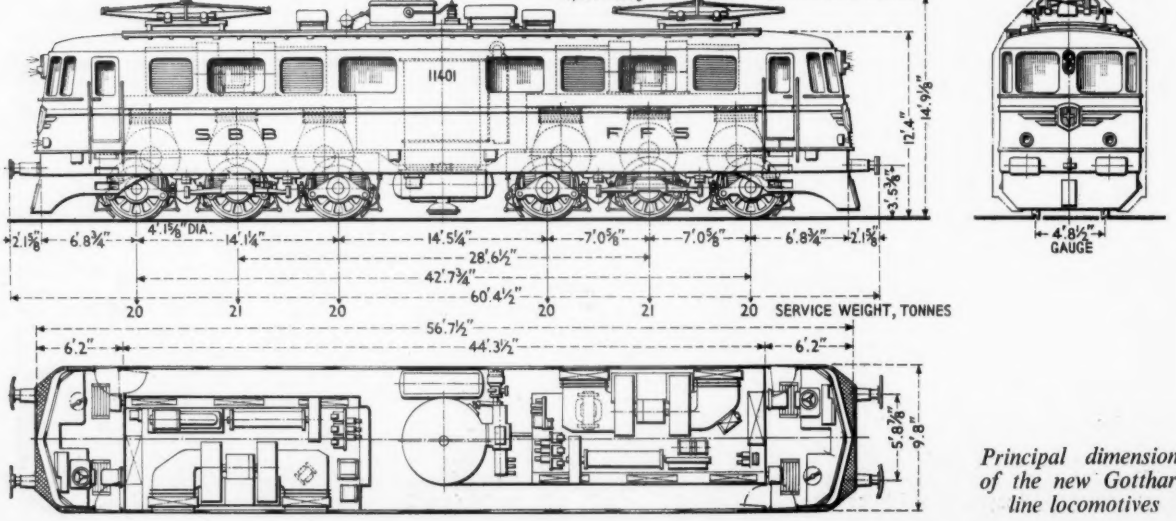
### Earlier Designs

Previous electric locomotives designed specially for Gotthard line service have been of rigid-frame types, notably the 6,480 kW. unit No. 11851 introduced in 1932, and the 8,950-kW. No. 11852 set to work in 1939. Both of these had the 2 (1-Bo-1-Bo-1) wheel arrangement; but the 1-Bo-Bo-1 machines of 1941 were a slight simplification.

As a consequence of successful operating experience with the now standard 4,000 b.h.p. Swiss Federal locomotives during recent years, a double-bogie layout has been adopted for the two new machines Nos. 11401 and 11402. However, because of the weight and of the power to be absorbed the Co-Co arrangement was necessary, though the




*One of the 122-ton, 6,000 h.p. (one-hour) Co-Co single-phase locomotives for the Swiss Federal Railways*




*Principal dimensions of the new Gotthard line locomotives*

principles of bogie construction are the same as those of the 4,000 h.p. Bo-Bo class.

### Characteristics

Leading dimensions of the two new locomotives will be found in the diagram opposite. Other principal particulars of tractive efforts and weights are:—

Individual traction motor rating:—
Continuous: 900 h.p. at 78·5 km.p.h. (49 m.p.h.)
One-hour: 1,000 h.p. at 74 km.p.h. (46 m.p.h.)
Corresponding locomotive outputs:—
Continuous: 5,400 h.p.
One-hour: 6,000 h.p.
Corresponding rail tractive efforts:*
Continuous: 18,000 kg. (39,700 lb.)
One-hour: 21,200 kg. (46,700 lb.)
Maxin um starting effort: 33,000 kg. (72,800 lb.)
Factor of adhesion: 3·72
Maximum speed: 125 km.p.h. (78 m.p.h.)
Rail tractive effort at top track speed: 8,000 kg. (17,600 lb.)
Weights:—

| | | |
|---|---|---|
| Mechanical portion | ... ... | 66·1 tonnes |
| Electrical ,, | ... ... | 55·9 ,, |
| Sand, supplies, etc. | ... ... | 0·5 ,, |
| Total | ... ... | 122·5 tonnes |

* With half-worn tyres

In accordance with Swiss classification, the locomotive numbers are prefixed by Ae 6/6, showing that all six axles are driven individually. Overhead line current is the Swiss standard 15-kV. 16·6-cycles, single-phase.

### General Factors

As in other Swiss electric locomotives, the Federal Railways divided up the order between various makers, though the traction and workshops division collaborated in the design. The Swiss Locomotive & Machine Works (S.L.M.) prepared the general design, designed and built the mechanical portions, and saw the locomotives on to the rails, though actual erection was undertaken at the Munchenstein works of Brown Boveri, near Basle. Brown Boveri furnished practically all the electrical equipment, and the Maschinenfabrik Oerlikon the electric brake equipment, compressor groups, oil-pump groups, and storage batteries. Sécheron supplied some of the electrical control apparatus; and the pneumatic brake equipment came from the Swiss Westinghouse Company and the Fabrique de Machines-Outils Buehrle.

Cost of these two locomotives, including all new development and design charges allocated to the two, has been stated by the S.B.B. to be about 1·6 million Sw. Fr. or £133,000 per locomotive.

Prior to the adoption of the Co-Co wheel arrangement, S.L.M. made thorough investigation of an alternative Bo-Bo-Bo design; but it was found quite feasible to build three-axle trucks with motors symmetrically arranged in the truck frame. Drag and buffing gear stresses are taken through the framing of the superstructure in a straight line.

### Bogies

The S.L.M. bogies introduced some years ago for the then new Bo-Bo locomotives having given excellent service and riding properties, a decision was made to extend the same principle to a three-axle bogie; but here the centre traction motor lies vertically above its axle, whereas the two outer motors are inclined towards the centre. The main member of the bogie frame itself is of an exceptionally rigid hollow box section, welded up of flanged plates, and encircling as one piece the whole *ensemble* of wheels and motors. This construction and other details of suspension and brake gear can be seen very clearly in the accompanying illustration of a complete bogie. Particular attention was given to any change of section, to the corner pieces, and to the insertion of the necessary transversal stiffening pieces within the box section. Actually the corner pieces and the bearers carrying the pivots are steel castings for reasons of shape and cost.

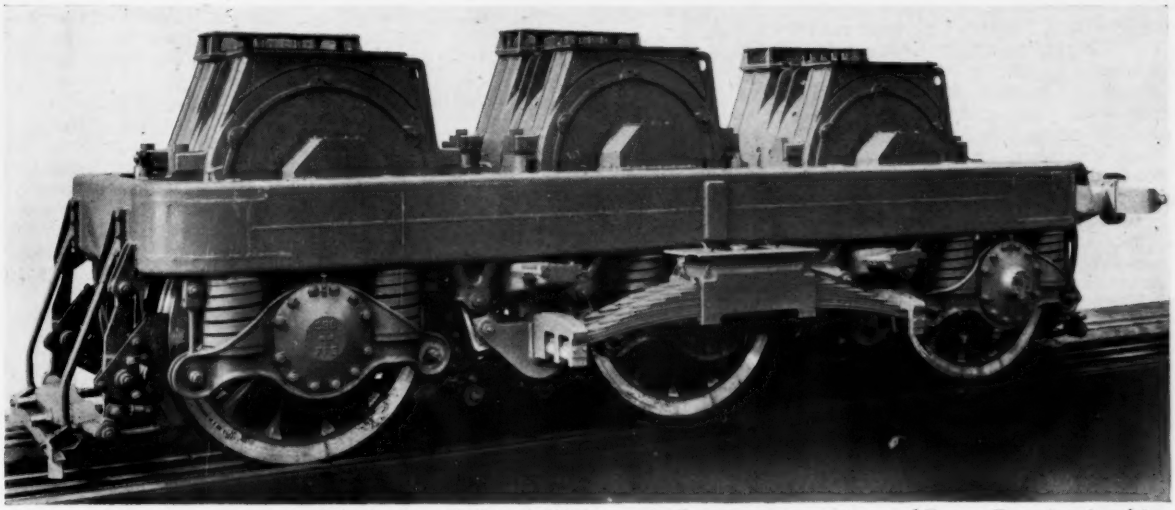
A bogie frame is supported on each pendulum-type S.K.F. roller-bearing axlebox through two helical steel springs; but contrasted with previous applications, no arrangements have been made to allow these springs to be removed from below. A simple friction damper is applied to each spring, comprising a rod at the side with its upper end fixed to a bracket on the bogie frame and the lower end clamped between two friction discs loaded by the spring pressure.

As in all modern electric locomotives of the S.B.B., the axleboxes are guided by means of cylindrical pins supported by the main beams of the bogie frame structure and extending down into the the interior of the helical springs. On these guide pins bronze bushes slide in an enclosed oil bath; the bushes themselves are pressed within the supporting arms of the axlebox and are enveloped by Silentbloc bushings.

### Pivoting and Weight-Carrying

Considerable technical interest attaches to the manner in which pivoting action is obtained, and to the means by which the locomotive body is supported on the bogies. Each end of the body is carried on the adjacent bogie through sliding shoes on two double inverted laminated springs arranged longitudinally outside each centre wheel, the ends of the springs on each side being connected by cross beams. These beams pass under the longitudinals of the bogie frame and are attached to them by pendulum links. Such a suspension system makes it possible for the locomotive body to swing laterally when subjected to forces acting at right angles to the direction of travel.

As the space above the centre driving axle is occupied by the middle traction motor, a normal centre pivot could not be fitted. Therefore an imaginary pivot point was created in designing by having the slides above the laminated springs in the shape of an arc with centre of curvature lying in the middle of the bogie. This



*Construction and arrangement of the bogie with three* 1,000 *h.p. springborne tractor motors and Brown-Boveri spring drive*

slide, and also the sliding shoes fixed in the main side longitudinals of the body, are of wedge-shape cross section. As the slide is rigidly connected in the horizontal plane to the buckle of the double laminated spring, these springs are moved across, together with the suspension device from the locomotive body, when any lateral deflection takes place. So that the bogies also may have angular displacement in the vertical plane, the slides are carried on curved bearing plates. The slides are of bronze, but the sliding shoes from the body, and the bearing plates, are of case-hardened steel; and all the supporting parts are in a dust-proof oil bath.

Incorporated in each bogie frame structure are two principal cross members, one fore and one aft of the centre traction motor. Into each of these a centre pin is pressed; and these pins project downwards and engage in spherical bearings in cross beams attached to the locomotive body but which run under the bogie frame main members. The bearings have a side play of 47 mm. in the body cross members; and these bearings can also move longitudinally 10·5 mm. towards the outer axles of the bogie and 1·5 mm. towards the bogie centre. This distribution of longitudinal play, incidentally, ensures that for either direction of travel the bogies always pull and never push; and also results in a division of tractive forces in the bogie itself, *viz.*, two pulling components from the leading and centre axle, and a pushing component from the trailing axle.

A cross coupling between the bogies diminishes the nosing angle and guiding pressure of the leading wheels; but this connection also is combined with a spring vertical coupling which gives partial compensation of the forces arising from the tractive efforts, and eliminates the need for either a compressed-air load-equalising device or electrical compensation in the traction motors themselves. This vertical spring coupling does not eliminate weight transfer altogether, but with the one-hour effort of 46,700 lb. reduces the transfer from the leading axle to about 2,850 lb. compared with about 4,800 lb. if there were no weight transfer compensation at all.

### The Body

Strength and rigidity are features of the all-welded steel body. The main box-girder longitudinals are outside at the bottom and are formed of flanged plates 6 mm. thick. To them are welded the 2·5 mm. side plates of the cab, the 4 mm. plates of the end walls and the 3 mm. curved plates of the roof. The equipment layout within the body can be seen in the diagram on p. 604 and it will be seen to be symmetrical about the centrally-located main transformer. The fan sets are mounted adjacent to the cab sides so that air is drawn in direct through the side louvres and the oil coolers immediately behind them. The cab roof has three large covers of light metal for putting in and withdrawing the equipment.

### Braking

For such a line as the Gotthard with its severe grades and onerous winter conditions the braking equipment needs to be complete. This comprises Westinghouse straight and automatic air brakes not only with the usual Continental graduations of express passenger train and goods train braking pressures, but also with a so-called shunting brake; the usual hand holding brake; an anti-slip brake; and electric regenerative braking. The particular air-brake control equipment, adopted here for the first time, was developed by the Buerhle works; it allows step-by-step operation of the brakes during application and during release; and the triple valve used brings together in one appliance the three above-named graduations and also the anti-slip brake, and so gives great simplification. Neither the triple valve nor the driver's brake valve has sliding parts or pistons, and allow pressure losses to be made up whatever the position of the brake.

(*To be continued*)

*Driving controls of the new Swiss Federal Railways 6,000 h.p. single-phase electric locomotive*

# Expanding the Capacity of Kalyan Power Station

## *Additional plant to supply railway requirements*

WHEN first brought into use, the Kalyan power station of the former Great Indian Peninsula Railway (now Central Railway) supplied main-line services, while current for the G.I.P.R. Bombay-Kalyan suburban section was purchased from Tata Hydro-Electric Agencies. In 1939 the Tata undertaking proposed supplying all the railway requirements except when a poor monsoon made assistance from the Kalyan thermal plant necessary A suitable agreement was made between the two parties, and duplicate 95 kV. feeders were provided to interconnect their generating systems.

The war, however, greatly increased the electrical load, and this tendency has persisted. The Tata system also supplied the former B.B. & C.I.R. suburban trains, but found itself unable to meet the needs of the two railways because of the mounting demand. On the nationalisation of Indian railways, the B.B. & C.I.R. (now Western Railway) had been taken over by the Government of India, so that the entire electrical load of both systems had to be shouldered by Kalyan.

Work is nearing completion on installing additional generating plant to raise the capacity of the station to 50/52,000 kW. This includes two G.E.C. 10 MW., 6·6 kV. alternators. There will be provision for installing an additional boiler and turbo-alternator at a later date. The station will remain interconnected with the Tata system, so that the latter will still be able to assist outside the months when the lake levels go down, during which time the principal maintenance programme will be carried out at Kalyan.

For handling extra coal, additional coal conveyor belts and a mechanical wagon tippler are being provided. The tippler will unload coal into a hopper from which a conveyor belt will transport it to a new junction tower, fitted with vibrating screens and a coal crusher. This junction tower will be connected to the existing junction tower by a cross-conveyor, so that coal unloaded either from the tippler or by hand as at present will be conveyed to the top of the existing boiler house and thence transferred by means of another cross conveyor and a shuttle conveyor to the bunkers of the new boilers which are being housed in a separate building running parallel with the existing building.

Besides the extensions being carried out to enable the railway to meet its own load, a further extension on behalf of the Government of Bombay is also in progress. The second extension when completed will be used for meeting the additional industrial and domestic load, which cannot be met by the existing capacity of Tata's hydro-electric. It will consist of three Siemens turbo-alternators of 18,000 kW. each and five Japanese boilers of 150,000 lb. per hour steaming capacity. The entire plant will, however, be operated and maintained by the railway and the extended power station will run as one integrated plant having a total installed capacity of 118,000 kW., with a prospect of its being extended to 136,000 kW.

# RAILWAY NEWS SECTION

## PERSONAL

The Minister of Transport has appointed Major J. T. Grey, who is a representative of local authorities, to be a member of the Transport Users Consultative Committee for Scotland.

The New Zealand Railways have announced the filling of two senior executive posts. Mr. J. Loft, formerly the Department's Revenue Accountant, has been appointed Chief Accountant. Mr. C. H. Bray, formerly of the Auckland Train Running Office, has been appointed Transportation Superintendent of the Railways.

We regret to record the death, on November 22, of Mrs. Florence Adelaide Coleman, Managing Director of "Modern Transport."

Mr. S. V. Kimber, Assistant Chief Stores Superintendent, and Mr. E. P. Smith, Superintendent (Financial), General Manager's Office, South African Railways, have retired.

The Rt. Hon. Sir Arthur Salter, formerly Minister of State for Economic Affairs, has been appointed Minister of Materials, in place of the Rt. Hon. Viscount Swinton.

British Railways, London Midland Region, has announced that the following have been appointed as Assistant Medical Officers: Drs. A. K. D. Rutherford, D. L. Waddell, and P. B. Williams.

ENGINEER & RAILWAY STAFF CORPS

The following notification appeared recently in *The London Gazette* under the heading of Territorial Army, Royal Engineers, Engineer & Railway Staff Corps:—

Major H. Firth, O.B.E. M.I.C.E., resigns his commission November 15, 1952, retaining the rank of Major.

Mr. C. W. Leverett, M.B.E., A.M.Inst.T., who has been appointed Traffic Superintendent & Regional Officer for Tanganyika, East African Railways & Harbours, began his railway career with the Midland & Great Northern Joint Committee in 1924. After experience at several stations, he joined the Chief Accountant's Department of the Tanganyika Government Railways in 1931, transferring to the Transportation Department in 1934 as Stationmaster & Port Officer, Kigoma, on Lake Tanganyika. After service in various parts of Tanganyika, Mr. Leverett joined the Royal Engineers in 1939 and saw service in East Africa, Madagascar and the Middle East. He was awarded the M.B.E. (Military) and Mentioned in Despatches, and attained the rank of Lt.-Colonel in the appointment of A.Q.M.G.(M.), East Africa Command. He returned to Tanganyika as Assistant Traffic Superintendent in 1945 and accepted a transfer to the Palestine Railways in the following year as District Traffic Superintendent at Haifa. On the termination of the Palestine Mandate, Mr. Leverett was transferred to the Kenya & Uganda Railways where he took up the position of District Traffic Superintendent, Mombasa. He continued to be engaged in this work until January 1 of this year, when he received the appointment of Traffic Superintendent & Regional Officer for Tanganyika on the East African Railways & Harbours.

*Mr. C. W. Leverett*

Appointed Traffic Superintendent & Regional Officer for Tanganyika, East African Railways & Harbours

Mr. R. A. Banks, Dr. Ronald Holroyd, Mr. C. R. Prichard, and Dr. James Taylor have been appointed to the board of Imperial Chemical Industries Limited.

The Scottish Region of British Railways announces the appointment of Mr. G. D. D. Greig, Assistant (Maintenance) to the Chief Officer Engineering (Maintenance), Railway Executive, as District Engineer, Inverness.

We regret to announce the death on November 15 of Mr. Samuel Martin, A.M.I.Mech.E., Chief Draughtsman & Drawing Office Manager of Mirrlees, Bickerton & Day Limited. Mr. Martin was 61.

Mr. John Benstead, C.B.E., Vice-Chairman of the British Transport Commission, has accepted the Presidency of the Railway Convalescent Homes for the year 1953 in succession to Mr. John Elliot.

Mr. S. J. Clarke, Manager of the British Thomson-Houston Co. Ltd., Swansea District Office, has been appointed Manager of the company's Newcastle-on-Tyne District Office, in succession to Mr. F. C. Barford, who will shortly be taking up another position in the British Thomson-Houston company.

LONDON MIDLAND REGION APPOINTMENTS

The following appointments are announced by British Railways, London Midland Region:—

Mr. J. B. Chadwick, District Estate Surveyor, St. Pancras, to be Assistant (General), Estate & Rating Surveyor's Department, Euston.

Mr. W. E. Oates, Assistant to District Goods Superintendent, Liverpool, to be Assistant District Goods Superintendent, Warrington.

Mr. T. H. Ruddock, Goods Agent, Luton, to be Goods Agent, Poplar.

The Engineers' Guild has announced that the following Officers have been elected for the year 1952-53: Mr. Bryan Donkin, as Chairman of the General Council; Mr. T. M. Megaw, as Vice-Chairman of the General Council; Mr. W. A. M. Allan, as Chairman of the Executive Committee; Mr. C. L. Champion, as Vice-Chairman of the Executive Committee.

Metropolitan-Vickers Electrical Co. Ltd. has announced that on November 1 Mr. W. A. Coates was appointed as General Sales Manager, and Mr. F. Gurney as Manager, Home Sales. Mr. Coates, who succeeds the late Mr. Duncan MacArthur, retains his seat on the board; he was appointed Manager, Home Sales, in 1946, and became a Director of the company in 1948. He is also a Director of Metropolitan-Vickers—Beyer, Peacock Limited, and Sunvic Controls Limited. Mr. Gurney became Assistant Manager, Home Sales, in 1949.

Mr. Samuel J. Massey, Terminal Superintendent at New Orleans, Illinois Central Railroad, U.S.A., has accepted the position of General Manager of the Grand Trunk Western Railway and the following staff changes in the Operating Department of the Illinois Central have been announced:—

Mr. Richard H. Carter, Superintendent of the Mississippi Division, succeeds Mr. Massey as Terminal Superintendent at New Orleans.

Mr. Samuel C. Jones, Superintendent of the Illinois Division at Champaign, has become Superintendent of the Mississippi Division.

Mr. John W. Dodge, Superintendent of the Springfield Division at Clinton, as Superintendent of the Illinois Division.

Mr. Franklin A. Fitzpatrick, Assistant to the General Superintendent of Transportation at Chicago, as Superintendent of the Springfield Division.

Mr. F. K. Stanford as Assistant to the General Superintendent of Transportation.

XUM

*The late Mr. George Terrell*
Formerly Chairman & Managing Director of Tyer & Co. Ltd.

*Prof. George Vladimir Lomonossoff,*
1876-1952

*The late Major M. J. M. Dewar*
Public Relations & Publicity Officer, Western Region, 1949-52

Mr. George Terrell, formerly Chairman & Managing Director of Tyer & Co. Ltd., whose death was recorded in our November 14 issue, was associated with the railway signalling industry for a great number of years, and was very actively connected with Mr. H. G. Brown, the father of the present Managing Director of the Westinghouse Brake & Signal Co. Ltd. He became Managing Director of the Consolidated Signal Co., and in 1911 was elected to the board of Tyer & Co. Ltd., of which he eventually became Managing Director, a position which he held for about 14 years. In the General Election of 1910 he was returned as Member of Parliament for the Chippenham Division of Wiltshire, which constituency he represented for 13 years. Apart from these activities he was one of the founders of the National Union of Manufacturers, of which he was President for 16 years. Mr. Terrell remained actively associated with Tyer & Co. Ltd. until his death on November 7, when he was in his 91st year. The funeral took place at Putney Vale Cemetery on November 10.

Mr. C. B. Nixon, Chairman of Leyland Motors Group, which embraces Albion Motors Ltd., will sail from England on November 28 to re-visit Australia where the two companies have been firmly established upwards of 30 years. The object of Mr. Nixon's visit is to review the progress of the company as compared with the general development of the country, and to assess how far, where, and when, further advance of the Group's activities will be justified.

We regret to record the death, on November 19, at the age of 76, of Professor George Vladimir Lomonossoff, Dr.-Ing., M.I.Mech.E., who was responsible for the introduction of diesel traction into Russia. Dr. Lomonossoff graduated from the St. Petersburg Institute of Transport in 1898, and for the next two years was engaged in locomotive testing on the Kharkoff-Nikolaeff Railway, holding at the same time the Assistant Professorship of Engineering at Warsaw Polytechnic. After acting as Professor of Railway Engineering at Kiev, he was in 1908 appointed Assistant Chief Mechanical Engineer of the Ekaterina Railway, and also President of the Locomotive Experiment Bureau, holding the latter position for nine years. In 1909-10 he was Chief Mechanical Engineer of the Tashkent Railway, and in 1911 of the Nicolas Railway, being appointed Assistant Director General of Russian Railways in the following year. From 1913 to 1920 he was successively Member of Supreme Engineering Council 1913-17; Under Secretary of Transport 1915-17; President of Railway Mission to the U.S.A. 1917-18; Under Secretary of Transport 1919-20. From 1920 to 1923 he was High Commissioner for Railway Orders, and supervised the construction of 1,700 locomotives of the 0-10-0 type, in addition to large quantities of railway material in Europe and Canada. The method of testing steam locomotives on the road developed by M. Lomonossoff from 1898 to 1912 is now used by the U.S.S.R., and, with slight modification, in Poland (Czeczott system), Germany, France, and Italy. In 1920 a meeting of 190 Russian experts, with M. Trotsky in the chair, turned down M. Lomonossoff's proposal to order a number of diesel locomotives. Nevertheless, M. Lenin gave his personal support, and in October, 1922, the Soviet Cabinet granted M. Lomonossoff £100,000, and a free hand, to build three diesel locomotives, and as High Commissioner for Diesel Locomotives 1922-26, he laid the foundations of heavy diesel traction as it is in Russia today. In January, 1935, Professor Lomonossoff entered into association with Messrs. Hitchins, Jervis & Partners, Chartered Consulting Engineers. In May, 1944, together with his son, Captain George Lomonossoff, R.E.M.E., he presented before the Institution of Mechanical Engineers the paper on "Condensing Locomotives," of which a summary appeared in our June 2, 1944, issue. For the last two years Professor Lomonossoff had lived in Montreal, and was apparently in good health until he died as a result of a heart attack.

Mr. C. R. Wheeler has been appointed a Director of Guest Keen & Nettlefolds Limited.

We regret to record the death, on November 23, at the age of 62, of Major M. J. M. Dewar, O.B.E., Public Relations & Publicity Officer, Western Region. Major Dewar joined the service of the former Great Western Railway in 1933 as Trade Advertising Agent. Before this he was, for seven years, in charge of the outdoor publicity of the Empire Marketing Board which he joined on its inception. In 1924-25 he was on the headquarters staff of the British Empire Exhibition at Wembley. Major Dewar served with his regiment, the Royal Sussex, in France from 1914 to 1916, when he was seriously wounded. He was on the General Staff at the War Office from 1917 to 1921 and was then invalided from the service. In 1934, a year after he had joined the Great Western Railway, Major Dewar was appointed Publicity Officer, a position which he held until the new organisation commenced on April 4, 1949. In 1938, he held the office of Chairman of the Advertising & Public Relations Committee at the Railway Clearing House for that year. He was recalled from the Regular Army Reserve of Officers in the early days of the recent war, and was transferred from his regiment to the Royal Engineers, with which he served for four years, mainly at the R.E. Depot, until, in December, 1943, he was invalided, and rejoined the Great Western Railway. A solemn Requiem Mass will be celebrated at the Chapel of Assumption, Kensington Square, today (Friday) at 11 a.m.

Mr. Louis G. Raiche has been appointed Works Manager at the St. Charles, Mo., plant of the American Car & Foundry Company.

We regret to record the death, on November 7, at the age of 83, of Mr. A. H. Coleman, formerly of the Buenos Ayres Great Southern Railway.

Mr. R. N. Smith and Mr. J. C. McIntosh, have been appointed to the Board of John Wright & Sons (Veneers). The former will retain his duties as Works Manager. Mr. McIntosh will continue to be Sales Manager of the Decorative Veneer Department.

# British Transport Commission Statistics. (Period No. 10)

*Summary of the principal statistics for the four-week period ending October 5*

## STAFF

| — | B.T.C. Head Office | British Railways | London Transport | British Road Services (Road Haulage) | Road Passenger (Provincial & Scottish) | Hotels & Catering | Ships & Marine | Inland Waterways | Docks, Harbours, Wharves | Railway Clearing House | Commercial Advertisement | Legal | Films | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number ... | 284 | 607,278 | 98,016 | 73,809 | 61,842 | 16,159 | 6,237 | 4,779 | 20,996 | 583 | 199 | 322 | 39 | 890,543 |
| Inc. or dec. | — | −2,877 | −202 | −547 | −1,093 | −563 | −398 | −7 | −134 | — | −1 | +2 | −3 | −5,823 |

## BRITISH TRANSPORT COMMISSION TRAFFIC RECEIPTS

| — | Four weeks (Period No. 10) | | Aggregate for 40 weeks | |
|---|---|---|---|---|
| | 1952 | 1951 | 1952 | 1951 |
| | £000 | £000 | £000 | £000 |
| *British Railways*— | | | | |
| Passengers ... ... ... | 8,353 | 8,409 | 87,980 | 85,794 |
| Parcels, etc., by passenger train | 2,867 | 2,621 | 27,210 | 25,274 |
| Merchandise ... ... ... | 7,876 | 7,840 | 78,076 | 74,131 |
| Minerals ... ... ... ... | 3,264 | 2,889 | 31,635 | 27,208 |
| Coal & coke ... ... ... | 7,995 | 7,510 | 76,572 | 69,047 |
| Livestock ... ... ... ... | 245 | 204 | 1,293 | 1,028 |
| | 30,600 | 29,473 | 302,766 | 282,482 |
| *British Railways* — C. & D. and other road services | 843 | 837 | 8,734 | 8,054 |
| *Ships and Vessels* ... ... ... | 1,061 | 1,082 | 9,601 | 9,844 |
| *London Transport*— | | | | |
| Railways ... ... ... ... | 1,378 | 1,256 | 13,694 | 12,363 |
| Buses & coaches ... ... ... | 3,124 | 2,731 | 30,189 | 25,874 |
| Trolleybuses ... ... ... | 712 | 754 | 7,344 | 7,487 |
| | 5,214 | 4,741 | 51,227 | 45,724 |
| *British Road Services*— Freight charges, etc. ... ... | 6,100 | 6,504 | 58,373 | 58,636 |
| *Road Passenger Transport* ... ... | 4,004 | 3,688 | 37,584 | 34,170 |
| *Docks, Harbours & Wharves* ... | 1,267 | 1,235 | 12,379 | 10,651 |
| *Inland Waterways* ... ... ... | 170 | 156 | 1,703 | 1,510 |
| *Hotels & Catering* ... ... ... | 1,337 | 1,319 | 12,643 | 12,499 |
| Total ... ... ... ... | 50,596 | 49,035 | 495,010 | 463,570 |

## LONDON TRANSPORT

| — | Passenger journeys | Inc. or dec. per cent. over 1951 | Car miles | Inc. or dec. per cent. over 1951 |
|---|---|---|---|---|
| | 000 | | 000 | |
| Railways ... ... ... | 44,165 | −9·0 | 16,831 | −6·0 |
| Buses & coaches ... ... | 228,235 | −1·6 | 27,729 | +5·0 |
| Trolleybuses ... ... ... | 58,714 | −20·9 | 5,809 | −22·0 |
| Total ... ... ... | 331,114 | −6·6 | 50,369 | −2·7 |

## INLAND WATERWAYS

**Tonnage of traffic and ton miles**

| — | Tonnage | Inc. or dec. per cent. over 1951 | Ton miles | Inc. or dec. per cent. over 1951 |
|---|---|---|---|---|
| | 000 | | 000 | |
| Coal, coke, patent fuel & peat | 490 | +3·9 | 6,780 | −3·4 |
| Liquids in bulk ... ... | 163 | +8·5 | 4,266 | +12·5 |
| General merchandise ... ... | 316 | −17·2 | 4,938 | −12·2 |
| Total ... ... ... | 969 | −3·5 | 15,984 | −2·8 |

## BRITISH RAILWAYS

**Rolling Stock Position**

| — | Operating stock | Number under repair | Available operating stock | Serviceable stock in 1951 |
|---|---|---|---|---|
| Locomotives ... ... ... | 18,830 | 3,312 | 15,518 | 15,425 |
| Coaching vehicles ... ... | 57,667 | 5,243 | 52,424 | 52,693 |
| Freight wagons ... ... | 1,121,434 | 97,708 | 1,023,726 | 1,039,835 |

## BRITISH RAILWAYS

**Passenger Journeys (Month of August, 1952)**

| Full fares | Excursions, cheap day, etc. | Other descriptions | Early morning and workmen | Season tickets | Total | Inc. or dec. per cent. over 1951 |
|---|---|---|---|---|---|---|
| 20,354,000 | 32,439,000 | 4,976,000 | 15,217,000 | 19,760,000 | 92,746,000 | −3·3 |

## BRITISH RAILWAYS

**Freight Tonnage Originating and Estimated Ton-Miles (Period No. 10)**

| — | Merchandise | Minerals | Coal & coke | Livestock | Total | Inc. or dec. per cent. over 1951 |
|---|---|---|---|---|---|---|
| | 000 | 000 | 000 | 000 | 000 | |
| Tons originating ... | 3,855 | 4,941 | 13,455 | 116 | 22,367 | −0·5 |
| Ton-miles ... ... | 527,140* | 402,744 | 833,044 | — | 1,762,928 | −3·9 |

* Includes livestock

## BRITISH RAILWAYS (Period No. 10)

| — | Total steam coaching train-miles | Total electric coaching train-miles | Total freight train-miles | Freight train-miles per train engine-hour | Net ton-miles per total engine-hour | Locomotive coal consumption | |
|---|---|---|---|---|---|---|---|
| | | | | | | Total tons | Lb. per engine-mile |
| 1952 ... ... ... ... | 14,558,000 | 3,795,000 | 11,003,000 | 8·8 | 623 | 1,017,000 | 61·0 |
| 1951 ... ... ... ... | 14,344,000 | 3,782,000 | 11,197,000 | 8·5 | 618 | 1,025,000 | 60·7 |

XUM

# International Union of Railways

*Important decisions at Board of Management meetings in Paris*

The annual meeting of the Board of Management of the International Union of Railways (U.I.C.) held at the headquarter office in Paris on November 17-19, marked the thirtieth anniversary of the founding of that body. It was the thirty-fourth meeting of the Board, and in view of the pressing nature of many of the questions facing the railways of Europe and of other Continents, it was decided to hold Board meetings twice yearly in future.

The need to discuss the many problems on an international level is in line with the present trend not only in Europe, but in North America, where all the railways of the U.S.A. and Canada are making more extended use of the Association of American Railroads. It was decided to increase the headquarter staff under Monsieur Tuja, the Secretary General, by two officers, one each from the German Federal and Italian State Railways.

Good progress has been made in developing standard wagon design for the Western European railways, of which prototypes already are in circulation, and two of the new designs, one a long four-wheel flat and the other a well-insulated refrigerator wagon, were available for inspection at the Gare de l'Est by delegates attending the Board meeting.

Much interest was shown in extension of the "Europ" wagon pool, at present embracing some 100,000 wagons provided by the French and Western German railways.

### Sixth Permanent Committee

A Sixth Permanent Committee was formed under the chairmanship of the German Federal Railways, to concentrate on specific problems submitted, with the title of Organisation Methods & General Studies.

At this meeting the revision of U.I.C. literature was reported as virtually complete, thus eliminating any element of duplication with other international railway bodies.

The comparative facilities offered by rail and by air in international passenger traffic in Europe were discussed at length. In accord with the steadily increasing tempo, effective steps were taken to accelerate the taking of decisions in the several U.I.C. committees, through greater delegation of responsibilities. Mr. F. Q. den Hollander, President of the Netherlands Railways, described the work of the O.R.E. (Office de Recherches et d'Essais) at Utrecht with its international staff, including one from British Railways, and now one of the most important of U.I.C. activities.

The value attached to the Union's work by the Governments of Western Europe was shown by the presence at a reception of Monsieur Moriel, the French Minister of Transport, Public Works & Tourism.

Monsieur Moriel emphasised the importance of the decisions reached and to the vital role of railways in the economic and social life of Europe, and expressed appreciation of the opportunity the Board meeting afforded him of meeting those in whose hands lay the responsibility of managing and operating a railway network stretching from Scotland to Greece and from Spain to Finland.

Mr. John Elliot, Chairman of the Railway Executive and senior Vice-President of the Union, in his speech at the official luncheon stressed the absence of narrow national considerations and complete fellowship of operating, commercial, and technical railwaymen, whose aim was to improve the efficiency of their industry on the international level.

Twelve General Managers or Presidents of railways attended the Paris meetings, representing Great Britain, Austria, Belgium, Denmark, France, Germany, Italy, Luxembourg, the Netherlands, Spain, Sweden, and Switzerland; Norway, Portugal, and the Saar also were represented at the General Assembly which customarily follows the Board of Management meeting. London Transport, recently elected to associate membership, for the first time sent a representative, Mr. H. R. Broadbent, to the General Assembly.

On the proposal of Mr. John Elliot, Monsieur Louis Armand, General Manager of the French National Railways, was re-elected as President for a further term of two years, and Mr. E. G. J. Upmark, General Manager of the Swedish State Railways, and Dr. Frohne, President of the German Federal Railways, were elected additional Vice-Presidents.

### Asiatic Railway Officers Present

Monsieur Pierre Tissier, Chairman of the French National Railways, presided at a lunch given to the delegates and attended also by members of the mission from railways in India, Pakiston, the Far East, who have been visiting the European railways, as recorded in our issue of November 7.

The British delegation was led by Mr. John Elliot, supported by Messrs. R. H. Hacker, C. E. R. Sherrington, W. B. Addinall, and H. R. Broadbent. Mr. C. W. Edwards, permanent British representative at U.I.C. Headquarters, attended all the meetings. Observers were present from various Government bodies such as the Central Office for International Railway Transport at Berne, and the O.E.E.C.

# Free-Piston 110 c.f.m. Portable Air Compressor

*New unit in use on Western Region*

In 1937 Alan Muntz & Co. Ltd. acquired exclusive rights of the Pescara free-piston engine patents, since when the firm has built a number of free-piston air-compressors. A portable model, the P.42, with an output of 110 c.f.m. is now in production in this country, and one of these compressors has recently been purchased by the Western Region, British Railways, and is in use at Sonning Cutting.

Free-piston engines comprise an engine and air-compressor designed as a single unit. The power produced at the diesel piston is transmitted directly to the compressor piston instead of being converted into rotary motion as an intermediate step. The motion of the pistons is controlled by their inertia and the gas pressure acting on their faces, instead of connecting rods, crank and so on. The P.42 machine has three separate cylinders: cushion; diesel; and compressor cylinder. The moving parts comprise two opposed diesel pistons, connected, one to a cushion piston, the other to a compressor piston. The two groups of pistons are equal in weight and being opposed run without vibration; movement is synchronised by means of a simple mechanical linkage.

As the diesel pistons move outwards from their inner dead point, air is compressed in the cushion cylinder to give the necessary return energy to maintain the two-stroke firing cycle, while air compressed by the compressor cylinder, passes from the receiver into the pipeline. Two

*The air-compressor in service in Sonning Cutting*

injectors are fitted, located in the top and bottom centre of the diesel cylinder, and are fed by a single pump operated from a cam on the rocking shaft. Bearing surfaces are pressure lubricated by a single-acting pump. The diesel and cushion pistons are splash lubricated, while the compressor cylinder is provided with its own independently metered oil supply. Some of the advantages claimed for this design by the maker are light weight and extreme mobility, ease of starting under all weather conditions, few and robust moving parts and ease of overhaul and maintenance.

## S.R. Motive Power and Operating Departments Dinner

The third of the successful series of dinners held by the Motive Power and Operating Departments of the Southern Region took place in London on November 12. Mr. T. E. Chrimes, Motive Power Superintendent, was in the chair, supported by Mr. S. W. Smart, Superintendent of Operation. There was an attendance of 159 drawn from the two departments.

Among those present were:—

Mr. John Elliot, Chairman, the Railway Executive ; Mr. C. P. Hopkins, Chief Regional Officer ; Mr. F. E. Campion, Civil Engineer; Mr. L. J. Boucher, Signal & Telecommunications Engineer; and Mr. F. T. Muncey, Rolling Stock Assistant to the Mechanical & Electrical Engineer, Southern Region ; Colonel P. M. Brooke-Hitching ; and Major O. Aardal, Norwegian State Railways.

Mr. T. E. Chrimes, in welcoming Mr. Elliot, expressed his satisfaction at the very great and never failing interest Mr. Elliot showed in the activities of the Southern Region.

Mr. S. W. Smart, in proposing the Toast of the Motive Power Department, expressed his personal and official thanks for the high standard of service rendered by the Motive Power staff at all levels. He stressed the important part it played in the successful working of a very intensive train service, and in the excellent degree of punctuality achieved throughout the Southern Region in respect both of steam and electric passenger trains, and freight trains as well.

Mr. T. E. Chrimes then proposed the Toast of the Operating Department. He paid tribute to its daily work of moving large numbers of business travellers and stressed the importance of the team spirit which existed in both the Operating and Motive Power Departments as a means of succeeding in this work and in the many other phases of successful railway operation.

Mr. John Elliot, replying to the Toast of the Guests, referred to the good service that British Railways by and large were giving both to passengers and traders and emphasised that this work must go on efficiently and with growing economy in spite of changes. Referring to the Transport Bill, Mr. Elliot pointed out that one part of it contained two freedoms for the railways which were of the utmost importance, the freedom to quote rates (subject to maxima)without having to disclose them to their competitors; and the freedom from the old restrictions of undue preference, which were no longer appropriate now that the railways had no monopoly of movement. If these freedoms were given, he said, and were not destroyed by new restrictions and limitations, or rendered useless by delay, and were not nullified by a sense of unreality in reorganisation or by pandering to the railways' competitors, while maintaining fair safeguards for the trades which depended entirely on rail transport, then under such real competition, he was confident the railways could forge ahead.

Mr. Elliot pointed out that the railways could carry still more traffic. By stopping doing those things which could be done better on the road, and concentrating on the many services that they could perform better than any one else, coupled with the use of the most modern methods in research, manufacturing, and working, he was sure the railways would go from success to success. Mr. Elliot concluded by saying that everyone on the railways must look forward with confidence, reminding them of Sir Douglas Haig's words at the darkest stage of the 1914-18 war that "very few things are as good or as bad as they first seem."

Mr. C. P. Hopkins, Chief Regional Officer, congratulated the departments on their fine performance during the year, reminding them that the standards they were setting were being used as targets for others to emulate, and expressed the hope that the Southern would set even higher standards in the future. Mr. Hopkins also pointed out that it should never be forgotten in the stress of achieving these standards that the work done was not only very good railway work, but of the utmost importance to the country, and in fact the efficient and punctual train service given by the Southern Region to workers in other industries played an important part in industrial efficiency.

## Governor of Kenya Visits E.A.R. & H. Workshops

Sir Evelyn Baring, the Governor of Kenya, visited the Nairobi workshops of the East African Railways & Harbours on November 10, accompanied by Mr. A. F. Kirby, Acting Commissioner for Transport, and Mr. A. Dalton, General Manager, East African Railways & Harbours.

On arrival at the shops he was met by Mr. G. Gibson, Chief Mechanical Engineer, and Mr. J. Hudson, Works Superintendent, who escorted him through the principal shops. In the general machine shop he saw artisans of all races at work on modern machine tools. After going through the erecting and boiler and fitting shops inspected the smithy and the carriage and wagon section of the works.

He saw vehicles which had been built or converted in the works, including three old railcars converted to third class coaches for the Tanga Line, one of thirty-one caboose coaches (for carrying spare train crews), which are being converted from goods wagons, and the first of eight bogie insulated wagons being built for the Kenya Meat Commission. Passing through the carriage building shop he saw inspection coach bodies under construction and the prototype of a series of 55 brakevans to go into production next year. In the sawmill the Governor examined some of the machines and samples of some of the local timber commonly used. Finally, a visit was paid to the foundry where he watched the processes involved in casting iron and non-ferrous metals.

The Governor visited next the railway control in the Headquarters building, which controls the movement of all rolling stock and engines on the Kenya & Uganda section and arranges the distribution of all wagons in accordance with orders received at the stations. He was particularly interested in the central traffic control system which is in operation between Mombasa and Nakuru and is staffed throughout the 24 hr. The controllers are in direct contact with stations by selector telephone system and so can control the movements and crossings of all trains, thus ensuring that the maximum possible use is made of line capacity.

At the Transportation School near the Headquarters building, which is responsible for training stationmasters, guards, clerks and telegraphists, for the Operating and Commercial Departments, the Governor spoke to students and gave a brief talk to the class. He said that he was agreeably surprised to see that so many of the more important posts were held by Africans. Forty-four Africans are at present training to be assistant stationmasters at the school.

*Sir Evelyn Baring, Governor of Kenya, walking through the machine shop of the East African Railways & Harbours at Nairobi. He is accompanied by (left) Mr. G. Gibson, Chief Mechanical Engineer, E.A.R. & H., and Mr. A. F. Kirby, Acting Commissioner for Transport, East Africa, and (right) Mr. J. Hudson, Works Superintendent, E.A.R. & H.*

## Movement of Seed Potatoes from Scotland

Since the opening of the 1952 season British Railways have run 207 special trains of seed potatoes from Scotland to England—189 via Berwick; five via Hawick and Carlisle; and 13 via Gretna. The heaviest concentration of movement of traffic is to East Anglia. To expedite the assembly of the seed potato special trains the former L.N.E.R. marshalling yard at Perth is being used. South Leith Marshalling Yard, Edinburgh, where normally only dock traffic is dealt with is also being used for making up special trains with bulk loads of seed potatoes for Lincolnshire and East Anglia.

Large consignments of seed potatoes for shipment are also being carried by rail from stations in Perthshire and Aberdeenshire. Already this season 169 wagons of seed potatoes have ben despatched from Eassie (Perthshire) and 124 wagons from Fraserburgh (Aberdeenshire) to Southampton for shipment to South Africa. On November 20, a special train left Fraserburgh with 29 vans of seed potatoes for overseas shipment at Southampton, and on November 21, four vans, which brought grapes from Italy, returned to the Continent with 60 tons of seed potatoes for Catania in Sicily. The vans left Bankfoot, in Perthshire, and crossed the Channel by the Dover-Dunkirk train ferry.

## New Inquiry Office at Liverpool Lime Street

The new passenger inquiry and seat and sleeping car reservation office at Liverpool, Lime Street, London Midland Region, was opened by Alderman Sir Alfred Shennan, J.P., on October 7. The new office, which will deal with over 250,000 train inquiries and reserve 250,000 seats and over 100,000 sleeping berths a year is the largest in Liverpool. Its design will facilitate quicker and more efficient service. For telephone inquiries, a special panel has been installed to contain the seat reservation and sleeping berth charts so that these are readily accessible to the counter clerks and to the telephones situated behind the special panel.

The design of the office is by Mr. J. M. Harrison, A.R.I.B.A., Architect, London Midland Region. The major work of alteration was carried out by R. Miles & Company, of Liverpool. The counter, of which the top is of Formica and the frontage of walnut, and the special internally illuminated signs, were built by William Mason & Sons, Ltd., storefitters, of Leeds and London. The floor covering is by the Cellulin Flooring Co. Ltd., of London, and the general electrical work was carried out by the L.M.R. Mechanical & Electrical Engineer's local staff. The general lighting consists of nine 300-Watt new type opal fittings suspended by satin bronze tubes produced by Falk Stadelmann & Co. Ltd.

"APARTHEID" ON SOUTH AFRICAN RAILWAYS.—The Cape Supreme Court has dismissed the Crown appeal against acquittal in a magistrates' court of an African charged with contravening railway apartheid regulations. As part of the passive resistance campaign he had entered a waiting room reserved for Europeans only. The magistrate acquitted him on the ground of the disparity in the waiting room accommodation provided for Europeans and non-Europeans.

PERMANENT WAY WORK ON LIVE RAILS.—Judgment has been given for the Railway Executive in an action against it in respect of the death of a temporary sub-ganger killed between New Cross Gate and Brockley, Southern Region; he was directed to splay out the wing rail crossing points so as to replace a broken bolt, and while he was doing so either his foot slipped, or his crowbar slipped, and he fell backwards on to the live rail and was electrocuted. The plaintiff contended that the defendants ought either to have cut off the current or to have provided a cover over the live rail. The Judge held that the deceased was an experienced man who appreciated the hazard of the job. He could not accept that it was a reasonable precaution to cut off the current. If current was to be cut off for every minor job it would immobilise the electric railways of this country.

*Passenger Inquiry and Reservation Office recently opened at Liverpool Lime Street, showing lightning and interally illuminated signs*

## Parliamentary Notes

### Transport Bill Timetable

Mr. Harry Crookshank (Leader of the House) on November 14 moved the Government motion on allocation of time for the remaining stages of the Transport Bill, which provided that the committee stage be completed in seven days, the report stage in two, and the third reading in one day, and that the Business Committee report their recommendations about proceedings in committee not later than December 1, and about proceedings on report not later than the fourth day on which the House sits in 1953.

The Transport Bill, he said, of 1946 was presented at the end of November and received the Royal Assent early in August, 1947. On this occasion the first time the subject came before Parliament was the White Paper in May and the debate on the B.T.C. Report. The Bill could not become law until next Spring. The 1946 Bill had 127 clauses and 13 schedules, and occupied 136 pages of print, whereas this Bill had 35 clauses and three schedules, and occupied only 48 pages. Last time there were 31 sittings of the standing committee, lasting 76½ hours. It was now proposed that the committee stage last 45½-49 hours.

Mr. Herbert Morrison (Lewisham C.—Lab.), for the Opposition, said the Government had no right with a small majority to bring in this brutal guillotine, which was imposed because the Opposition had said they would vigorously oppose the Bill.

A Liberal amendment to extend the time for the committee stage to ten days was defeated, as also another Liberal amendment to extend the report stage to four days, and the Government motion to apply the guillotine was carried by 301 votes to 275.

### Iron & Steel Bill

Opening a two-day debate on November 25 on the Second Reading of the Iron & Steel Bill, Mr. Duncan Sandys (Minister of Supply) said the Bill had two chief aims: (a) To establish a comprehensive system of public supervision embracing the iron and steel industry as a whole, and so end the harmful split which resulted from the 1949 Act; and (b) to restore independent initiative and financial responsibility to companies to provide incentives for cheap and efficient production.

"We seek to preserve the stimulus of private enterprise," he added, "subject to the safeguards of public supervision." Private enterprise could not be combined with monopolistic public ownership. By removing financial responsibility, State ownership quenched the spirit of private initiative.

Mr. G. R. Strauss (Lambeth, Vauxhall—Lab.), for the Opposition, argued that an industry which was doing well under public ownership should not be upset because of the political prejudices of the party in power.

The House was counted out before the debate was due to be adjourned.

### Increase in Transport Charges

Mr. Alan Lennox-Boyd, in reply to a question by Mr. Alfred Barnes (East Ham S.—Lab.), on November 18, as to the effect on B.T.C. traffic receipts of Government intervention in the Spring of this year in transport charges, said that the B.T.C. was limited in the alteration of rates and fares to the use of the discretion given to it by the Transport Tribunal, and on that single issue alone a perfectly proper Government intervention took place.

To Mr. Barnes' further question whether

the £2½ million a year to be derived from a 5 per cent increase in road haulage charges would in fact be gained, Mr. Lennox-Boyd said it was unfortunately true that during this coming year it was very unlikely that B.R.S. would be adding to the net profits of the Commission.

Mr. J. S. Maclay (W. Renfrew—Nat. Lib.-Con.) pointed out that last December, at the time of the 10 per cent increase in freight rates, it was possible to limit the increase to 10s. a ton in the interests of long-distance traffic, above all in Scotland. With the present increase of 5 per cent, he asked the Minister to consider limiting the increase possibly to 5s. a ton. Mr. Lennox-Boyd replied that research had shown that the benefit of the previous taper as applied to long journeys to Scotland has also increased by 5 per cent, and this was an automatic follow-up of the decision reached last December.

### Import of Railway Materials

Mr. H. R. Mackeson (Secretary for Overseas Trade) stated on November 24, in answer to a question as to an advertisement in a British trade journal of American wagon scantlings, that American oak was imported by private traders in 1951, when sufficient hardwood for wagon repairing was not available from sterling sources. He could not say whether the American scantlings referred to were a residue of those imports, some of which were found unsuitable for their original purpose. The Railway Executive aimed at meeting its requirements from Australian jarrah, and home-grown oak. Colonial hardwoods also were being investigated. Imports of oak scantlings which cost dollars had been and would be strictly controlled.

### Railway Fuel Policy

Speaking in the House of Lords debate on November 19 on the Report of the Committee on the National Policy for the use of Fuel & Power Resources, Lord Leathers (Secretary of State for the Co-ordination of Transport, Fuel & Power) said that the railways now were using nearly 14 million tons of coal a year, mostly high quality large coal in great demand for export and other purposes.

As the Ridley Committee Report pointed out, much of that was wasted, because of the relatively low thermal efficiency of steam locomotives. There was a strong case for replacing at least some of the steam by other forms of motive power, either electric or diesel, or possibly, in the future, gas turbine; but a changeover of that sort involved a huge capital investment, and must take time. Large-scale dieselisation involved importing fuel from abroad. In an emergency it would be valuable to have our own fuel supply rather than rely on foreign supplies.

### Road Haulage

Mr. A. T. Lennox-Boyd on November 17 wrote in a reply to a question that compensation to nationalised road haulage undertakings as at October 31, 1952, was about £2·2 million. The total amount could not yet be determined.

### Ministry of Transport Staff

In answer to a question by Mr. David Renton (Huntingdon—Nat. Lib.-Con.), as to reduction of Ministry of Transport Staff, Mr. Alan Lennox-Boyd wrote on November 24 that the functions of the Ministry were mainly statutory and to reduce them would necessitate legislation. Economies effected by reviews of staffing arrangements and by improved organisation had yielded a reduction of some 270 non-industrial staff so far this year; further reductions should be possible next year.

### Closed Railway Lines

Mr. Gurney Braithwaite (Parliamentary Secretary to the Ministry of Transport), in reply to a suggestion on November 17 that he gave a general direction to the B.T.C. to remove track and make good the road at level crossings on closed lines, said he was satisfied that the railways did everything possible; no question of a direction arose.

## Questions in Parliament

### Railway Safety Precautions

Sir Waldron Smithers (Orpington—C.) on November 24 asked the Minister of Transport if, in view of the fact that safety on the railways had recently been impaired, in ways particulars of which had been sent to him, he would recommend the establishment of a Royal Commission to inquire and report on the betterment of safety precautions.

Mr. Alan Lennox-Boyd in a written answer said that he was in close touch personally and through the Railway Inspectorate with the B.T.C. and the Railway Executive on the important question of safety precautions. He did not consider a Royal Commission would be the best way to advance knowledge or secure further progress.

### Railway Pensioners

Mr. George Thomas (Cardiff W,—Lab.) on November 17 asked the Minister of National Insurance whether he would rectify the anomaly whereby, although old-age pensioners were allowed to earn £1 a week and still receive supplementary assistance, the railwayman who drew a pension of £1 a week in addition to his old-age pension was debarred from receiving supplementary assistance.

Mr. Osbert Peake wrote: I see no anomaly in the rule established in 1948 under which the earnings of retired people are treated more favourably than superannuation for purposes of assistance; but whether in either case assistance will be payable will depend on the pensioner's other circumstances.

## Contracts & Tenders

La Société Alsacienne de Constructions Mécaniques has received an order for 20 4-6-2 locomotives for the Egyptian State Railways.

La Société des Chemins de fer Vicinaux du Congo has ordered 15 Comet "90" lorry chassis from Leyland Motors Limited. The system already operates a fleet of Leyland Comet "90" lorries.

British Railways, Western Region, announce that the following contracts have been placed:—

Caffin & Co. Ltd., W.C.2: carrying out repairs and extensions to the existing track drainage at various sites near West Ruislip.

W. & J. Glossop Limited, W.6: resurfacing of Transport Avenue and ancillary works at Brentford Town Goods Depot.

West Bromwich Casement & Engineering Co. Ltd., West Bromwich: supply and fixing of patent glazing to a portion of the carriage shed roof at Wolverhampton.

Penarth Pontoon, Slipway & Ship Repairing Co. Ltd., Penarth Docks: work to be performed in connection with the annual overhaul of the ss. *St David*, 1952.

The Board of Trade, Special Register Information Service, has reported that the closing date of the calls for tender for suburban and inter-urban electric rolling stock issued by the New South Wales Government has been deferred indefinitely. Previous reference to the tender was made in our May 9 issue.

The Board of Trade, Special Register Information Service, has reported a call for tenders issued by the Directorate General of Supplies & Disposals, Government of India, for the supply of 465 vacuum brake cylinders of varying types and sizes for locomotives, etc.

Tenders should reach the office of the Director General of Supplies & Disposals, New Delhi, by 4 p.m. on Wednesday, December 17.

## Notes and News

**General Engineering Draughtsman Required.**—A general engineering draughtsman, between 24 and 28 years of age, is required by railway and civil engineering plant manufacturers. See Official Notices on page 615.

**Vacancy for Sales Engineer.**—Applications are invited for the post of sales engineer for Belgian plant required by a wagon builder. Technical training essential, and a knowledge of Spanish and French an advantage. See Official Notices on page 615.

**New Branch of the Institute of Transport in Ireland.**—The Council of the Institute of Transport has now given approval for the formation of a local section of the Institute, comprising members of all grades in the Republic, to be known as the Irish Section. Application for permission to form this branch was made after a meeting in Dublin on October 31, presided over by Mr. T. C. Courtney, Chairman of Coras Iompair Eireann. A Northern Ireland Section is already in existence, with headquarters in Belfast.

**L.M.R. Christmas Orchestral Concert.**—To celebrate its 30th season, British Railways (London Midland Region) Orchestral Society has arranged a Christmas concert on Friday, December 12, in the Friends House, Euston Road, London, N.W.1. The programme will include Max Brugh's Concerto for Violin and Orchestra in G Minor, and Mendelssohn's Concerto for Pianoforte and Orchestra in G Minor. The soloists will be Pauline Elmitt (Violin), and Mavis Elmitt (Pianoforte). George Elmitt will lead the orchestra and the conductor will be John Grindley.

**"Blue Train" in Collision.**—Two persons are reported to have lost their lives and 13 to have been injured when the "Blue Train," the Paris-Riviera *train-de-luxe*, ran into the rear of a goods train being shunted at St. Rambert d'Albon, between Lyons and Valence, early on the morning of November 19. The engine, brake van, and one sleeping car of the "Blue Train" were derailed. Whilst the main line on the left bank of the Rhone was being

cleared, trains between Lyons and Valence were diverted to the line on the right bank, *via* Tournon. The cause of the accident is believed to have been heavy snow affecting the signalling.

**Air Passenger Traffic Record.**—Passenger traffic by international airlines achieved a record in September. The International Air Transport Association states that transactions through its London clearing house during that month totalled £7,500,000, compared with £5,500,000 in September, 1951. Turnover for the first eight months of this year was £68,600,000, against £43,000,000 for the corresponding period in 1951.

**Stockholders' Protest at Delay in Taking Over G.N.R.**—A resolution expressing dissatisfaction with the delay in introducing the necessary legislation in connection with the acquisition of the Great Northern Railway by the Northern Ireland and Eire Governments has been passed by the Committee of the G.N.R. Stockholders' Association. The resolution states that great hardship has been caused to many stockholders because of the delay and calls on the Governments to take immediate steps to carry out their undertaking. It adds: "The Stockholders' Association has insistently pressed on the Governments that simple justice demands that interest should be paid on the compensation sum as from the date on which the decision of the Governments was first announced." It calls on members of both Parliaments to demand that such interest be provided for in the legislation to be placed before the Governments.

**Diesel-Electric Locomotives for Ceylon.**—The first of 25 diesel-electric locomotives for the Ceylon Government Railways, was formally handed over to the High Commissioner for Ceylon, Mr. E. A. P. Wijeyaratne by Sir Ronald Matthews, Chairman of the Brush Electrical Engineering Co. Ltd., at a ceremony held at its Brush Bagnall Traction works, Loughborough, on November 20. Sir Ronald Matthews said that the order, the first of its type to be obtained by the Company, was valued at £1,038,500, and was placed only after fierce competition. Sir Ronald Matthews said that only by expanding our export trade could we avoid economic destruction. Exporting was not getting easier, costs were rising, and competition was being intensified, but he felt that the problems were realised by all engaged in industry. Every effort was, and would continue to be, made by the Company to increase production, and improve efficiency. This was the only way to reduce costs.

**New Engineering Wage Claim.**—A claim for a substantial increase in pay for draughtsmen, clerical, and scientific workers employed in engineering was submitted to the Engineering & Allied Employers' National Federation in London on November 25. The claim follows the recent settlement for a wage increase of 7s. 4d. a week to all adult engineers. The employers undertook to consider the application.

**British Railways Staff Ball at York.**—Over 400 members of the railway staff of all grades and departments attended the Staff Ball in the Georgian Hall at York on November 7. Among the guests were the Lord Mayor of York (Alderman C. W. Wright, District Surveyor, British Railways, York), and the Lady Mayoress; The Sheriff and his Lady; Mr. W. P. Allen (Member, Railway Executive) and Mrs. Allen; Mr. D. F. Gowen (Executive Officer, Salaried Staff) and Mrs. Gowen, and Mr. H. A. Short (Chief Regional Officer) and Mrs. Short.

**Removal of Timber Restrictions Urged.**—Addressing the Timber Trades Luncheon Club recently, Mr. Phillip O. Reece, Director of the Timber Development Association, said that if two or three years ago the Government had swept away all restrictions on the buying and selling of timber, we should today be getting all the timber we needed and it would not be costing the country a penny more. A very special danger lay in that field of industry where concrete was being used merely as a substitute for timber, not because it was cheaper or better, but simply in "the sacred cause of saving wood." In the field, he maintained, the Government was diverting enterprise into channels which would not show a profit in our balance of payments. It was "clattering up the transport system" with materials which had probably the lowest commercial value per ton in the country, while, in building, it was increasing costs in an industry where high efficiency was already very difficult to achieve.

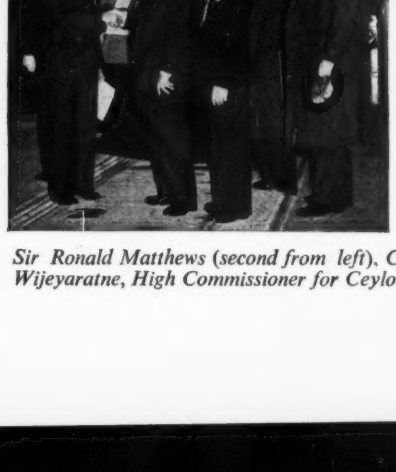
**Electrification of Auckland Suburban Lines.**—An agency message from Wellington states that the New Zealand Cabinet has approved the appointment of British consulting engineers to advise on the electrification of Auckland suburban lines. He said Mr. B. C. Aswin, Secretary of the Treasury, was in London to confer with interested firms. The new system, key to a £20 million plan to modernise city and provincial services, involves the construction of New Zealand's first underground stations.

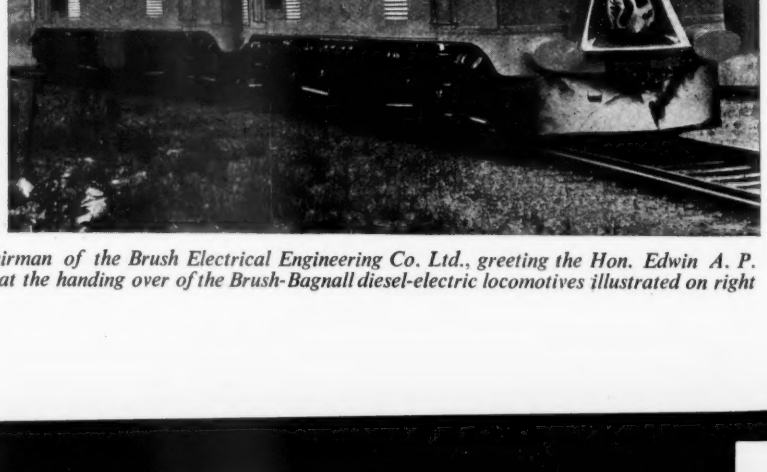
**N.E. Region 1952 Clean and Tidy Stations Competition.**—For the sixth consecutive year since the war Fyling Hall station has won a first prize in the North Eastern Region Clean and Tidy Stations Competition. Others first class stations are:—

| | |
|---|---|
| Barrasford | Middleton-in-Teesdale |
| Beal | Morpeth |
| Cliburn | Pelaw |
| Cloughton | South Shields |
| Frosterley | Wallingfen |
| Gristhorpe | Westgate-in-Weardale |
| Hartley | Whitby Town |

Forty-five stations gain second prizes, 155 third, and 124 Certificates of Commendation.

**The London Transport Dramatic Club.**—On Thursday, Friday and Saturday, November 20, 21 and 22, the London Transport Dramatic Club presented "Thark," a farce in three acts by Ben Travers, at the Rudolf Steiner Hall, Park Road, N.W.1. Rowland Wale and Ronald Golding gave very amusing performances as Sir Hector Benbow and Ronald Gamble respectively, as did Peter Moore in the part of Lional Frush. Evelyn Peck, as always, was excellent in the part allotted to her, that of Mrs. Frush. The principals were well supported by the rest of the cast, and the whole performance was on a par with the high level one has come to expect from the London Transport Dramatic Club. The play was produced





*Sir Ronald Matthews (second from left), Chairman of the Brush Electrical Engineering Co. Ltd., greeting the Hon. Edwin A. P. Wijeyaratne, High Commissioner for Ceylon, at the handing over of the Brush-Bagnall diesel-electric locomotives illustrated on right*

# OFFICIAL NOTICES

*The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.*

IMPORTANT wagon builder desires Sales Engineer for Belgian Plant. Work to consist of estimating costs, preparing detailed technical quotations, doing sales work both written and by personal contact. Spanish and French languages useful. Technical training essential. Preference given to man willing to travel. Excellent future for man with right combination of sales and technical abilities. Minimum age 25, maximum depending on experience but preferably not over 45. Excellent salary depending on qualifications. Reply Box 679, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

RAILWAY DRAUGHTSMAN-SURVEYOR required by large firm of railway contractors. Applicants must have ability to carry out site surveys, plot same in layout form to good working scale (detailing for manufacture of turnouts, etc., done by other draughtsmen), capable of full use of theodolite and level, duties to include site supervision of contracts in progress, age 25-30 years, man with British Standard Specification experience preferred, conditions of employment to include provision of car, all travelling and general expenses, five-day week on rota system, comprehensive superannuation scheme, etc. Write in first place, stating age, experience and salary required.—Box No. 660, *Railway Gazette*, 33, Tothill Street, London, S.W.1.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25s. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press Limited, 33, Tothill Street, London, S.W.1.

GENERAL ENGINEERING DRAUGHTSMAN required for old and established Railway & Civil Engineering Plant Manufacturers. Should have O.N.C. and good knowledge of Mathematics. Age 24-28 years. At least A.E.S.D. Rates on commencement. Apply Works Manager, WILLIAM JONES LIMITED, Westmoor Street, Charlton, S.E.7.

INTERNATIONAL RAILWAY ASSOCIATIONS. Notes on the work of the various associations concerned with International traffic, principally on the European Continent. 2s. By post 2s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

N.E.R. HISTORY.—Twenty-Five Years of the North Eastern Railway, 1898-1922. By R. Bell, C.B.E., Assistant General Manager, N.E.R. and L.N.E.R. Companies, 1922-1943. Full cloth. Cr. 8vo. 87 pages. 10s. 6d.—*The Railway Gazette*, 33, Tothill Street, London, S.W.1.


by Gladys Burchell, and interval music was provided by the London Transport Orchestra.

**Railway Students' Association.**—On Wednesday, December 10, a paper will be read before the Railway Students' Association on "Transport and the Export Drive," by Mr. E. R. Harris, at the London School of Economics & Political Science, Houghton Street, Aldwych, W.C.2, at 6.15 p.m.

**Institute of Railway Signal Engineers.**—A paper on "Running Line Capacity" will be read by Mr. B. F. Wagenrieder before the Institution of Railway Signal Engineers, at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, W.C.2, at 6 p.m. on Friday, December 12.

**B.E.T. Road Passenger Transport Award.**—The Council of the Institute of Transport announces that a cash prize of £100 is offered in 1953 by the British Electric Traction Co. Ltd. for an original paper which, in the opinion of the Council of the Institute, makes an outstanding practical contribution to the advancement of the science and art of road passenger transport operation and administration. The award, available equally to members and non-members of the Institute, is made available once in three years. Notes for the guidance of authors of papers are available from the Secretary, the Institute of Transport, 80, Portland Place, London, W.1.

**Locomotive & Carriage Institution of Great Britain and Eire Annual Dinner.**—The annual dinner of the Locomotive & Carriage Institution of Great Britain and Eire was held at the Lysbeth Hall, Soho Square, London, on November 22; 240 members, wives, and friends attended. Guests present included Mr. R. F. Harvey, Chief Officer, Motive Power, the Railway Executive, and Mrs. Harvey; and Mr. L. P. Parker, Motive Power Superintendent, Eastern Region, and Mrs. Parker. Mr. T. C. B. Miller, President of the Institution, was prevented from attendance by illness, and the Chairman, Mr. W. J. Osborne, presided. The dinner was followed by dancing.

**Increase in British Oil Refinery Capacity.**—Mr. C. M. Vignoles, Managing Director of Shell-Mex & B.P. Limited, introducing the Shell film "Stanlow Story" on November 25, stated that British oil refinery capacity is eight times greater now than in 1946. British refinery capacity, he said, had risen from 3,000,000 tons in 1946 to more than 24,000,000 tons now. Of this total the Shell and Anglo-Iranian groups together contribute 17,000,000 tons. The £8 million catalytic cracking plant at the new refinery at Stanlow, with other similar Shell and Anglo-Iranian units, provided the necessary flexibility in production to make the reintroduction of premier grade petrol next February an economic possibility. The film describes the construction in 1948-52 of the new refinery at Stanlow, Cheshire, near Ellesmere Port on the Manchester Ship Canal, which has a capacity of 4¼ million tons a year.

**Heaviest Coal Traffic Since April.**—British Railways carried 3,293,810 tons of deep-mined and opencast coal in the week ended 6 a.m. on November 24—the highest figure since April. The weekend figure, 406,230 tons, was also the highest since April. During the week ended November 15, 230,427 tons of iron and steel from the principal steelworks and 309,000 tons of iron ore were carried.

**South Wales & Monmouthshire Railways & Docks Lecture & Debating Society.**—A paper on "Modernisation and Mechanisation of Handling Facilities," illustrated by lantern slides, will be read before the South Wales & Monmouthshire Railways & Docks Lecture & Debating Society by Mr. F. Grundy, at 6.30 p.m., at the Angel Hotel, Westgate Street, Cardiff, on Tuesday, December 9.

**B.T.C. Civil Defence Training Schools.**—A British Transport Commission Civil Defence Training School opened at York in February under the administration of the North Eastern Region of British Railways, for giving two-day courses on basic civil defence training, and it is most encouraging to record that more than 1,000 members of the staff, drawn from the various Executives, attended the school. Another school has recently been opened at Newcastle-upon-Tyne, and the influx of volunteers has been such that the training programme at this centre will continue for several months.

**Australian Import Restrictions Modified.**—The Special Register Information Service of the Board of Trade has reported a change in the administration of the Australian import restrictions on goods at present subject to fixed quotas. The size of each importer's quota is calculated from the value of his imports from non-dollar non-Japanese sources in the period July, 1950, to June, 1951. Goods in transit to Australia, or covered by letters of credit on March 8, 1952, (the date the restrictions were imposed) were admitted, but their value was debited against the importer's quota for the first quarterly licensing period, and if necessary against one or more of his future quarters' quotas. The change made has been to cancel these debits against future quotas from the January 1, to March 31 quarter of 1953. Importers whose January-March, 1953, and any subsequent quarter's quotas were still absorbed by goods in transit, on March 8, 1952, will from January 1, 1953, be able to apply for import licences up to the full value of their quarterly quotas.

**Accident to Madrid-Seville Mail Train.**—Six persons were killed and about 100 injured when a Madrid-Seville mail train was derailed near Vadallano, about 190 miles from Madrid, on November 20. The accident is attributed to a broken rail.

**Japanese-Built Locomotives Delivered to Pakistan.**—Ten of twenty-five metre gauge "YD" locomotives being built in Japan for the Eastern Bengal Railway, Pakistan, have been delivered. The remainder are expected to reach Chittagong by December.

**First Aid Award to Pump House Attendant.**—On November 10 Mr. H. A. Short, Chief Regional Officer, North Eastern Region, made a presentation to Mr. Frederick H. Wilson, a pump house attendant, in the Motive Power Department at Carlton Towers, near Selby, for meritorious first aid to a driver who had been knocked down by another train. At the presentation, in the Board Room at York, Mr. F. H. Petty, Motive Power Superintendent, congratulated Mr. Wilson on the fact that so well had first aid been applied that the injured driver was put into the ambulance immediately on its arrival without further attention being necessary from the doctor.

**Encouragement of Fluorescent Lighting.**—Mr. E. R. Wilkinson, Commercial Manager, British Electricity Authority, said at the recent Industrial Productivity Conference in London, organised by the British Electrical Development Association, that one of the most important factors in relation to lighting for many years was the recent recommendation of the Ridley Committee that the purchase tax on fluorescent lighting should be removed. That was a fundamental fact in lighting considerations. It was the direct recommendation of the Ridley Committee, dealing with this country's fuel and power policy, that fluorescent lighting should be used and should be encouraged to the extent that the purchase tax should be completely removed. He thought the Chancellor of the Exchequer could not ignore that recommendation; there was liable to be a hold-up in the sale of an article when the removal of purchase

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tax is impending, and the attention of the Chancellor should be drawn to that and the removal of the purchase tax should be expedited.

**Havana Railways Future.**—The organisation of a private company to take over the British-owned United Railways at Havana was indicated by President Batista of Cuba in a broadcast on November 21. The commission studying the position of the railways had submitted several possible solutions to the Government. The Government expected to solve the situation soon with the co-operation of sugar mill owners, cane planters, merchants, manufacturers, and workers. President Batista said: "We do not propose to make violent changes but to foster the gradual and logical change to a private company which may be organised" to operate the railway.

## Forthcoming Meetings

December 1 (*Mon.*).—Institute of Transport, Metropolitan Section, at 80, Portland Place, W.1, at 5.30 for 6 p.m. Annual General Meeting, followed by "Decline and Fall of the London Tramways," by Mr. C. F. Klapper.

December 1 (*Mon.*).—Society of Engineers, in the apartments of the Geological Society, Burlington House, W., at 5.30 p.m. "The Fatigue of Metals; Facts and Theories Reviewed," by Mr. B. R. Byrne.

December 2 (*Tue.*).—Institute of Transport, Midland Section, at the Imperial Hotel, Birmingham, at 6.30 p.m., "The Port of London Authority and its Functions," by Mr. H. A. Lingwood.

December 3 (*Wed.*).—Institute of Transport, Scottish Section, at Glasgow Corporation Transport Offices, at 6 p.m. "Relationship of Oil to Transport," by Mr. D. H. Joyce.

December 4 (*Thu.*).—British Railways, Western Region, London Lecture & Debating Society. Debate with the Southern Region Lecture & Debating Society, in the headquarters' Staff Dining Club, Bishop's Bridge Road, Paddington, at 5.45 p.m.

December 4 (*Thu.*).—Engineers Guild, Metropolitan Branch, at Caxton Hall, Westminster, at 6 p.m. Three films.

December 4 (*Thu.*).—Institute of Electrical Engineers, Savoy Place, W.C.2, at 5.30 p.m. "Economic Aspects of Overhead Equipment for D.C. Railway Electrification," by Mr. O. J. Crompton and Mr. G. A. Wallace.

December 5 (*Fri.*).—Railway Club, 57 Fetter Lane, E.C.4, at 7 p.m. "The Bodmin & Wadebridge Railway," by Mr. C. R. Clinker.

December 6 (*Sat.*).—Electric Railway Society, at Fred Tallant Hall, 153, Drummond Street, N.W.1, at 3 p.m. Annual General Meeting.

December 6 (*Sat.*).—The Historical Model Railway Society, at the Euston Hotel, N.W.1, at 2.30 p.m. Annual General Meeting.

December 6 (*Sat.*).—British Railways, Southern Region, Lecture & Debating Society. Visit to Beckton Gas Works, at 2 p.m.

December 6 (*Sat.*).—Irish Railway Record Society. Sixth annual dinner, at Amiens Street Station Restaurant, Dublin, at 7 p.m.

## Railway Stock Market

Business in stock markets has again failed to show improvement, though firmness prevailed with very little selling reported. When buyers are more in evidence, prices in most sections are likely to respond strongly, as jobbers seem short of stock because of the small amount of selling recently. Buyers, however, are still showing a waiting attitude in view of the important decisions impending which will have a big influence on the outlook. The Commonwealth Conference is to discuss wider convertibility of sterling and other measures designed to increase the trade of the sterling area. There is a general tendency to await further indications of the programme and policy of the new American Government, which will have an important bearing on world trade and commodity and metal prices.

Contrasted with the waiting attitude in industrial sections, British Funds have been inclined to attract more business and were firm, helped by the assumption that a reduction in income tax rate is likely next year, and that before long the bank rate may be lowered. British Transport new 4 per cent stock was quoted at $\frac{3}{16}$ premium.

Dorada Railway ordinary stock, after last week's sharp advance on revived takeover rumours, showed a partial reaction to 59 in the absence of any confirmation of these rumours. Guayaquil & Quito bonds attracted buyers and rose sharply to 32½, and Manila Railway issues were more active with the "A" debentures 76 and the preference shares 8s. 9d.

United of Havana stocks were little changed despite the assumption that an early announcement may be made by the Cuban Government on its views on takeover plans. Doubt continues whether in any case there would be an immediate payment and that a pay-out would probably be spread over a period. Nevertheless, it is recognised that the directors would not accept any plan unfair to shareholders in the light of the proposed capital reorganisation. United of Havana 5 per cent 1906 debentures are 18¼ at the time of going to press, the 4 per cent Cuban debentures 40, and the 4½ per cent Western debentures 20, while Havana Terminal debentures changed hands around 70½.

Peruvian Corporation issues have been less active and easier this week with the 6 per cent debentures 54, the preference stock 6½, and the ordinary stock 2½.

Antofagasta preference stock moved back slightly to 52½; the ordinary stock was 11½. San Paulo 10s. ordinary units have changed hands around 9s. 9d., while Taital shares were 14s. 6d. and Nitrate Rails 18s. Mexican Central debentures eased to 66½. Costa Rica ordinary stock remained more active up to 8. Chilian Northern 5 per cent debentures marked 27.

There has been further selling of White Pass & Yukon common shares which came down to $17⅛, with the convertible debentures £64. Canadian Pacific were easier at $58¾, with the 4 per cent debentures £80½.

Engineering and kindred shares have been a firmer market with buyers more in evidence. Yields in many cases are attractive, and with more steel available and hopes that the Commonwealth Conference will devise plans for increasing export trade, engineering shares may attract growing attention. In any case they would be prominent if there were a general rally in stock markets.

Talk of a possibility that a higher dividend may be in prospect helped Babcock & Wilcox, which have strengthened to 69s., while Vickers moved up to 43s. 6d. and Cammell Laird 5s. shares showed firmness at 11s. 7½d. Guest Keen at 52s. 6d. were well maintained, while T. W. Ward firmed up to 71s. 9d., and Tube Investments at 57s. 9d. responded to further consideration of the financial results and Chairman's annual statement. Elsewhere, Ruston & Hornsby were 38s. 3d. and Westinghouse Brake attracted at 50s., Associated Electrical moved up to 75s., and General Electric to 43s.

Beyer Peacock were 30s. 6d., Hurst Nelson 44s. 6d., and North British Locomotive 13s. 6d., while Birmingham Carriage were 32s. Central Wagon showed activity around 98s. 6d., Gloucester Wagon 10s. shares were 11s. 9d., North Central Wagon 13s. 6d., Wagon Repairs 5s. shares 12s. 9d., and Charles Roberts 5s. shares 20s. 3d. Vulcan Foundry changed hands around 23s. Elsewhere, B.S.A. at 38s. were unaffected by suggestions in the market that there soon may be need for additional capital to finance the group's progressive policy.

### Traffic Table of Overseas and Foreign Railways

| | Railway | Miles open | Week, or month ended | Traffics for week: This year | Traffics for week: Inc. or dec. compared with 1950/51 | No. of week | Aggregate traffics to date: Total 1951/52 | Aggregate traffics to date: Increase or decrease |
|---|---|---|---|---|---|---|---|---|
| | | | | £ | £ | | £ | £ |
| South & Cen. America | Antofagasta ... | 800 | 14.11.52 | 181,860 | + 7,970 | 46 | 7,077,000 | + 1,446,500 |
| | Costa Rica ... | 281 | Sep., 1952 | c1,207,759 | + c73,182 | 13 | c4,064,027 | + c360,780 |
| | Dorada ... ... | 70 | Oct., 1952 | 36,865 | − 29 | 44 | 345,133 | − 15,984 |
| | Inter. Ctl. Amer.... | 794 | Sep., 1952 | $909,367 | − $20,744 | 39 | $9,797,041 | − $169,447 |
| | Paraguay Cent. ... | 274 | 14.11.52 | G650,066 | + G339,464 | 20 | G12,001,406 | + G5,366,412 |
| | Peru Corp. ... | 1,050 | Oct., 1952 | $9,097,000 | + $716,000 | 18 | $37,947,020 | + $5,049,000 |
| | " (Bolivian Section) | 66 | Oct., 1952 | Bs.18,674,000 | + Bs.350,000 | 18 | Bs.66,080,000 | + Bs.6,361,000 |
| | Salvador ... ... | 100 | Aug., 1952 | c138,000 | − c3,000 | 9 | c276,000 | + c10,000 |
| | Taltal ... ... | 122 | Oct., 1952 | $3,106,000 | + $1,467,000 | 18 | $11,644,000 | + $3,701,000 |
| Canada | Canadian National† | 23,473 | Sep., 1952 | 19,197,000 | + 1,551,000 | 39 | 167,187,000 | + 13,772,000 |
| | Canadian Pacific† ... | 17,037 | Sep., 1952 | 13,024,000 | + 1,034,000 | 39 | 113,083,000 | + 8,082,000 |
| Various | Barsi Light* ... | 167 | Oct., 1952 | 33,915 | + 10,245 | 31 | 223,890 | − 15,382 |
| | Gold Coast ... | 536 | Sep., 1952 | 251,844 | + 73,121 | 25 | 1,686,832 | + 226,698 |
| | Mid. of W.Australia | 277 | Aug., 1952 | 54,609 | − 6,306 | 9 | 105,559 | − 8,162 |
| | South Africa ... | 13,398 | 15.11.52 | 2,012,536 | − 35,323 | 36 | 64,488,775 | + 1,892,934 |
| | Victoria ... ... | 4,744 | Aug, 1952 | 2,442,385 | + 510,468 | 9 | — | — |

* Receipts are calculated at 1s. 6d. to the rupee † Calculated at $3 to £1